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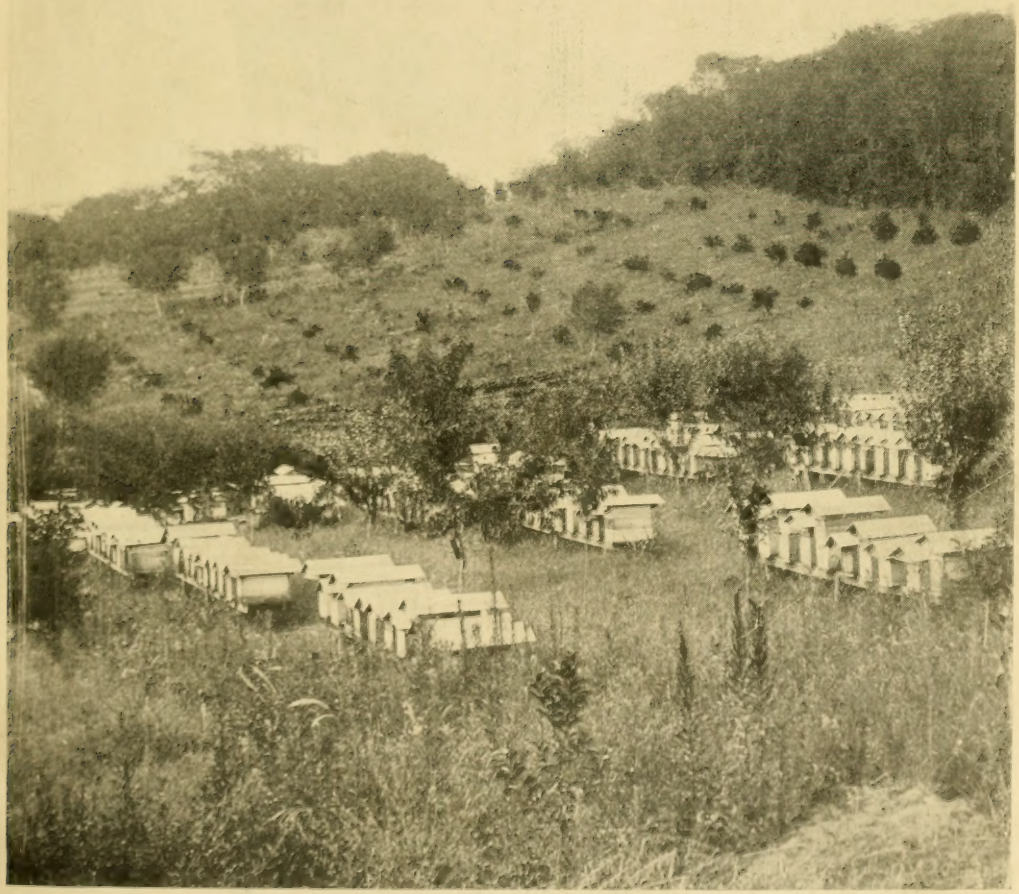
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Vol. XLIII JANUARY 1, 1915 No. 1

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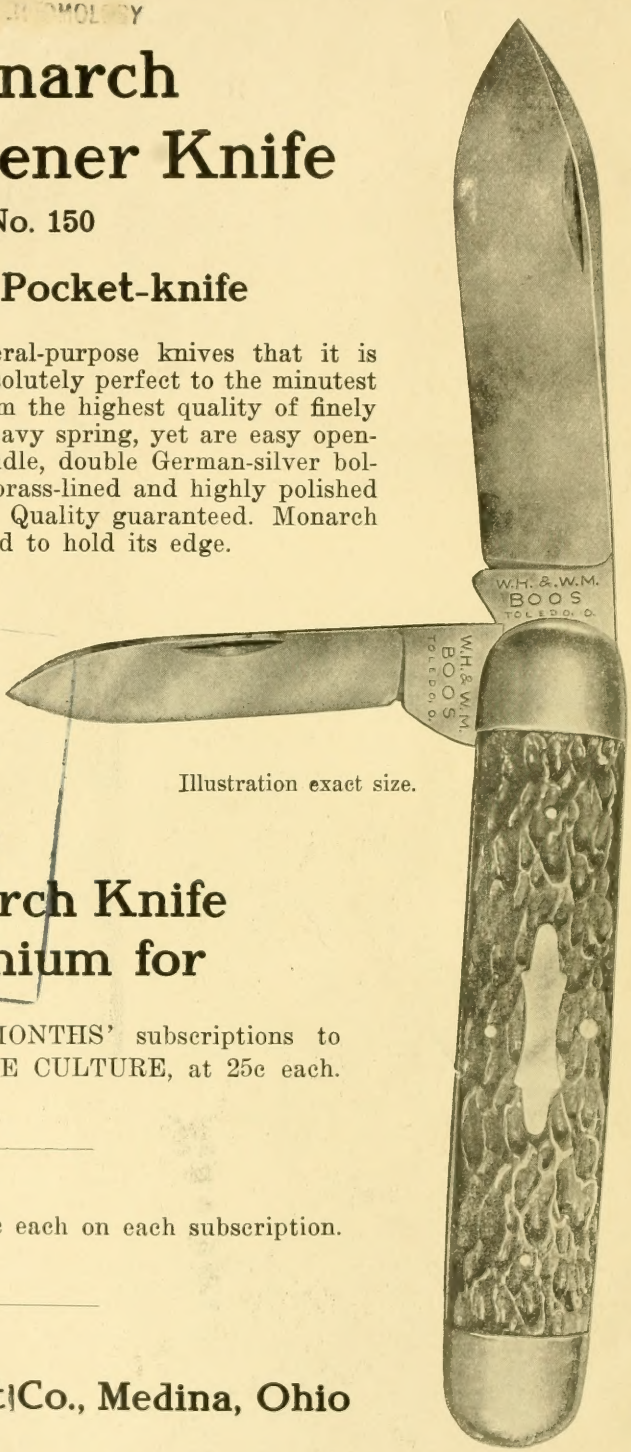


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VOL. XLIII. JANUARY 1, 1915 NO. 1

EDITORIALS

IN our last issue, page 968, under the general heading of "Retrospect," and referring to the particular work done by the Agricultural College at Guelph, Ontario, we inadvertently made the statement that said station was in charge of S. T. Pettit when we should have said Morley Pettit, a son of the former, who died a few years ago.

Our Cover Picture

EXCEPT that the hives are a little different in shape from most hives used in this country it is hard to imagine that the view shown on our cover is not an apiary situated in a young apple-orchard in some one of our northern States. As a matter of fact it is a picture of an apiary in Taquary, Brazil, sent us by Emil Shenk who, for the last three or four years, has been "ambulant" teacher of bee culture of the agricultural department of the federal government. Mr. Shenk writes that Brazilian bee culture is developing very nicely, but says he regrets that so little is said in regard to that country in GLEANINGS. He expects to send from time to time an article regarding conditions there.

The Bees at the Dismal Swamp

ACCORDING to the last report, these were coming on very nicely. While it was severely cold in and about Medina, the bees were flying at our Dismal Swamp yards.

The Virginia bees will be matched up against the bees in cellars and winter cases. If we can make a fair increase in the Virginia colonies that are too weak to winter at Medina, we shall feel abundantly satisfied. In this connection we may state that it is not our intention to go in for as heavy increase as we did in Florida last winter, for we shall do considerable in queen-rearing during March and April in the Dismal Swamp.

The editor of GLEANINGS expects to make a trip to the Dismal Swamp about the 15th of January. On his return he will give a report of what he finds from a direct inspection of every colony wintered; and when we say *colony* we mean hives with bees in them. These hives, when they went down originally, had only two, three, four, or five frames of bees—bees that had been used for supplying pound packages up to the very last minute at Medina, and which were in no condition to winter, either indoors or outdoors. We have always observed that colonies that have been used for filling orders for nuclei or queens clear up to the time of going into winter quarters are either very weak in the spring or die outright. Our Dismal Swamp experiments are to determine whether we can utilize these cripples, so to speak, and make something useful out of them next spring.

A Proposed State-wide Foul-brood Law for Idaho

AS a general thing a county foul-brood law, while it is better than nothing by a long way, comes far short of a State law for getting the best results. In every State where a county law is in effect the defects of the system have been so marked that, so far as we know, these county laws have either been replaced by laws State-wide in their application or are on their way to such replacement.

Idaho has probably the best county law of any of the States in the Union; but its defects have been already noticed; and the Idaho Honey-producers' Association, the most influential organization in the State, with its headquarters at Idaho Falls, Ida., expects to present to the Idaho legislature a draft of a new State-wide bill that incorporates some of the best features in other foul-brood laws adopted by the various States.

There are fair prospects that this bill can be passed; but it will need the *united* support of *all* the beekeepers of Idaho. Those of our subscribers who desire to cooperate are requested to get in touch with

the secretary of the Idaho Honey-producers' Association, Mr. F. C. Bowman, whose post-office is Idaho Falls, Ida. Prompt action will be necessary, as the legislature meets very soon.

A Variety of Experiments in Wintering being Carried on at Medina

THIS winter we are carrying on a variety of experiments in wintering our bees. Part are wintered indoors and part outdoors. The former are in two different cellars. In one (the warehouse cellar) the temperature ranges from 40 to 45, and in the other (the machine-shop cellar) from 45 to 60. The temperature of these cellars is somewhat dependent on the temperature outside, and hence the variation. Each cellar of bees is inspected daily to ascertain the purity of the atmosphere, the temperature, and the condition of the bees so far as it can be ascertained by a squint with an electric lamp at the entrance of several of the hives. In order to determine the temperature, tested mercurial thermometers are used. We secured the best we could find, and then placed a set of them outdoors for a few days, and then inside, and those that recorded exactly alike were selected, and placed in various portions of the cellar—some near the floor, some midway, and some near the ceiling. We note that the temperature in the upper part of the cellar is always higher than when near the floor by three or four degrees.

So far, Dec. 30, the bees are wintering nicely in both cellars, with the difference a little in favor of the cooler cellar. A few days ago we brought in one yard of bees containing our finest breeding stock, with a team and bobsleds. These bees were housed in double-walled hives; but as the weather had turned very cold we desired to give these bees every possible chance, and so we brought them home and housed them in the cooler cellar. We did the same thing last year after the weather had turned severely cold, and there was good sleighing. The results were highly satisfactory. The best time in all the world to move bees from outyards to the home cellars is when there is good sleighing. One pair of common runners for going through the woods after bees are better than a pair of bobs for moving bees. While the former will skid a little more, they will go over bumps easier.

OUTDOOR WINTERING IN QUADRUPLE WINTER CASES AND IN SINGLE INDIVIDUAL DOUBLE-WALLED HIVES.

As previously reported, we are testing out the ordinary individual double-walled packed hives alongside of hives with quadruple winter cases of the Holtermann type in the same yard. While these big cases are more expensive per colony, the bees in them are certainly showing up well. During the very coldest part of the winter, when the mercury plays around zero, with a high wind, the bees look very comfortable, and no wonder, for there are four hives in the case placed close together and with ten inches of packing all around. Very cold weather does not seem to affect the size of the clusters as it does in single hives.

Two colonies in these cases diagonally opposite each other are provided with absorbing packing above, while the two other colonies also diagonally* opposite have a sheet of glass for the purpose of observation, laid on top of the hives. While the latter does not make exactly what would be called top sealing, it does prevent to a great extent the upward escape of moisture. A little of it can pass out under the sides or edges, because the glass covers are not sealed down. So far colonies with glass covers are showing up very much better than where there is a free and unobstructed upward ventilation through the packing material. The packing over the hives where the glass is not used and where the moisture and heat can pass upward is a little damp; and this damp packing seems to have the effect of driving the bees down lower on the frames. We called Mr. Holtermann's attention to this when he was here. The showing in favor of the colonies under glass was so marked that he thought the other colonies must have been considerably weaker; but our apiarist assured him that all four colonies were of as nearly equal strength as we could get them.

Whether the colonies under glass will continue to show up as favorably in the spring remains to be seen.

Special Numbers for 1915

WE wish to call especial attention at this time to the list of special numbers announced on the inside cover page of the December 1st issue. It will be observed that we have planned for only four numbers, our idea being that, in having a smaller number, we could devote a little more time to the subject-matter and secure better material, perhaps. However, since announcing this list so much material has come in in regard to swamp beekeeping that it is probable we shall have one more number, perhaps the September 1st issue, on this subject.

* The object of this is to give the same exposure to the pair side by side.

It is always a problem to know just what subjects to select. We always have more requests for special numbers than we can handle. For instance, in making our plans for 1915 we had some thirty different subjects suggested by beekeepers, practically all of which would be suitable for special numbers. We can truthfully add the words "By request" to each subject that we finally selected, for in matters of this kind we prefer to act in accordance with the wishes of our readers themselves.

The February 1st issue, "Experiences of Prominent Beekeepers," is the first special number for the year. Our plans for the material going into this number are about complete. We expect to present a splendid outlay of advice from beekeepers of the professional class to those of the amateur class.

The April 1st number, the special theme of which is the life and teachings of Moses Quinby, is partially under way. What a pioneer he was! The amount of original study that he did is surprising. Working independently he went on far ahead of his day. If any of our readers have been particularly benefited by the teachings of Mr. Quinby we hope that they will write us regarding the matter, and we shall be glad to have some reference made to it in this number.

The August 1st issue, as announced, is to be the beginning of what we hope will be the most complete and elaborate bee botany ever offered to the public. We have already made some extensive plans for this number. John H. Lovell, an expert botanist and photographer, is going to make an elaborate contribution. It is hardly possible to collect too much material along this line, however, and therefore we are going to make this proposition: For a good detail photograph of a valuable honey-plant, new or old, together with a little description giving the time of blossoming approximately, quality of honey, importance of the plant, and any other interesting features, we will pay $1.00 to $5.00 in cash, provided the photograph is one that we can reproduce.

Where it is possible the photograph should be natural size, and should include both leaves and flowers; but do not use too many of either. For colored flowers (all that are not white) orthochromatic plates are desirable, and a ray filter will bring out the relative value of orange and blue flowers.

All pictures not accepted will be returned if stamps for this purpose are enclosed. You need not be a beekeeper nor even a subscriber to GLEANINGS to accept this offer. It is open to every one. Photographs 5 x 7 are preferred. Snapshots and photographs taken with small kodaks would probably not be acceptable unless very clear or of rare flowers. Photographs of large plants and trees show the flowers very indistinctly, and it is pictures of *flowers* that are wanted. In some cases, however, it may be desirable to send also a photograph of the entire plant.

There are some exceptions to the foregoing; but what we want primarily is a photograph so clear and sharp that one not acquainted with the plant could recognize it from the picture if he should see it. The lens must be "stopped down" in order to make the picture sharp and full of detail; and this means that the exposure, which must be short to prevent blurring caused by any movement of the leaves or blossoms, must be made in a very good light in order to secure the depth necessary. The negative must be printed on a glossy black and white paper; and the print, in order to reproduce well, should be just a *trifle* darker than would be necessary from a photographic standpoint. Here is a chance for beekeepers having cameras to make some money on the side, and, incidentally, to contribute to a much needed cause.

Since the publication of our booklet, "The Use of Honey in Cooking," a good many have written us telling of splendid new recipes that they would like to send us whenever we get ready to publish a special number on the subject. We wish to use a large number of recipes in this special number of October 1, "Honey for Cooking and for the Table," also "Honey as a Remedy." For any recipe which has not been published before, and which we can use, we shall be glad to pay $1.00. Therefore, if you have a good recipe which you have tried and *know* is good, and if you have use for an extra dollar, just send us the recipe in question.

In reference to the material used along the line of "Honey as a Remedy," perhaps we should add here this word of caution: Sometimes honey is recommended as a cure for very serious diseases. While we should be glad to publish any such that are sent in good faith, we feel that it would be best, in case of serious diseases, to have the name of at least one reputable physician who has used the preparation containing honey for the disease in question. This will go a long way toward preventing the publication of what might be called "hearsay evidence." The remedy might not and probably would not be harmful, even if it were of no value; but honey is sufficiently valuable for ointment in case of skin trouble, for colds,

including sore throat, hoarseness, etc., to make superfluous any attempt to prove it a cure-all.

Boiled Honey Not Suitable for a Queen-cage Candy, and Why

A YEAR or so ago the postal authorities at Washington required a certificate of inspection with every package of queens that went out through the mails, *or* a copy of an affidavit showing that the breeder boiled thoroughly all the honey in the queen-cage candy. To boil the honey was a nice procedure, but it seemed like a wise precaution, and we, like many other queen-breeders, not only furnished a certificate of inspection with every package of queens, but boiled the honey also.

We noticed that, for some reason, shortly after, queens would not go as far in the ordinary mailing-cages as they had done formerly. We observed also that we had to replace more shipments than formerly; but at the time we did not connect up cause and effect. We discovered, also, that it was practically impossible to send queens to foreign countries where hitherto we had sent them without any great difficulty. We changed the sugar; we altered the size of the cage; we modified the form of the cage. We put in water-bottles, thinking the bees needed a drink on the way. We gave them chunks of comb honey along with the queen candy; but, no matter what we did, the results were almost the same.

We discovered, also, that when we began to ship bees in pound packages this spring and summer they did not go through to their destination as well as they formerly did. We perfected the water-bottle, and that helped a great deal. We added a can of sugar syrup in addition to the can of water, and that helped, but continued to use the old queen-cage candy as before; but still the bees did not travel through in pound packages nor in mailing-cages as well as formerly. We were at our wits' end.

Finally we went back to the old style of export mailing-cage we used years ago that would deliver about 50 per cent of the queens alive to Australia. This failed as did the others. Then we began to think that possibly in some of the foreign countries the packages of mail, to prevent the spread of disease, were fumigated. But this did not explain the fact that in many cases the bees on arrival at destination had died of dysentery. Then we began to think it might be the wire cloth; but it could not be that, because there were some cases where no wire cloth was used, and yet the bees died just the same.

We began to get a clue to all our trouble when our Mr. Brown reported that there was one lot of bees that showed dysentery very strongly in the last car that went to the Dismal Swamp, Virginia, while other bees from other yards of equal strength showed no trouble. An examination of the record showed that the stained hives came from the Ault apiary. Now, the Ault bees had been fed with boiled Porto Rican honey to prevent any possible danger of disease. But the bees, apparently, did not like boiled honey, so we began to feed it later without boiling. But a great deal of boiled honey* had been fed just the same. The significant fact was that the Ault bees in the second car showed signs of dysentery at the end of the journey, when all the others showed no such symptoms. Finally it dawned upon us that the dysentery in the Ault bees in the carload and the dysentery in the pound packages of bees and in the bees in the mailing cages was due to a common cause, viz., boiled honey. The fact that a number of these shipments showed up dysentery, and that many others died without showing any symptoms, began to make us believe that the postal regulations, requiring the honey to be boiled, issued with benevolent intentions toward the beekeeping industry, were responsible for our trouble. Had not those authorities granted us the alternative of using an inspector's certificate in lieu of a statement that the honey had been boiled, the ruling would have come very near barring bees and queens from the mails.

It is possible that invert sugar might be used in place of honey in the making of a Scholz or Good candy. As invert sugar is similar to honey, there is no reason why it could not be used, providing, of course, that the substitute does not cause dysentery as does boiled honey. It is possible, and probable, on the other hand, that we may be able to use the "fondant" (made of glucose and cane sugar) praised so highly by our Massachusetts friends. But if neither fondant nor any other kind of sugar will answer, it is still permissible to use the old bee-candy such as we formerly used, made by mixing powdered sugar and raw unboiled honey into a stiff dough, provided, of course, that every package of bees is sent out with a copy of a certificate of inspection from a duly authorized inspector.

It is too late now to try out the whole proposition of mailing-cages and pound

* In boiling honey to kill possible bee-disease germs it is very easy to burn or scorch a little of it if it is not kept thoroughly stirred. Years ago A. I. Root found that a slightly scorched honey fed to bees for a winter food was almost sure to bring on dysentery, and in practically all cases it killed the bees outright before the winter was half over.

packages this season with either one of the substitute foods mentioned; but the reader may rest assured that we will give them a thorough trial again next summer.

Of course it is by no means proven yet that boiled honey has been the source of our trouble; but the indications point that way very strongly. It is certainly worth investigating, as our replace shipments by mail and express last year cost us hundreds of dollars.

A Serious Situation in Colorado; how the Spraying of Fruit-trees is Tending to Paralyze the Beekeeping Industry on the Western Slope

More and more it is becoming apparent that the spraying of fruit-trees in Colorado (or rather, perhaps, the spray falling on cover crops beneath) is destroying bees in such a wholesale manner that, unless something is done, beekeepers will be compelled to give up honey production entirely, or move their bees, if they have any left, to localities remote from any orchard. Some of the orchardists feel that bees are their best friends, and that they cannot afford to adopt any policy or practice that will cause their general removal. If all were like them the difficulty would be solved. More and more, facts are beginning to pile up, however, showing that thousands of colonies are either destroyed outright, or at least are so weakened that they are practically worthless. Unless something can be done it is estimated that something in the neighborhood of 5000 colonies (or as many as may be left) will have to be removed from the vicinity of the orchards in Western Colorado.

The experience of the last year or two in that State leaves no room for doubt now that the arsenites of the ordinary strength used for killing the codling moth will kill bees when the solutions containing them fall on the clover-blossoms beneath. Notwithstanding that, there is some testimony that goes to show that the same *spray on the trees* themselves is not necessarily destructive. In our last issue, Mr. J. A. Green, page 794, gives some evidence showing that the wholesale destruction of bees as the result of spraying can scarcely be questioned. On the other hand, Mr. Woodworth, on page 987, introduces some other testimony to the contrary. Fortunately this conflict of opinion can be easily explained.

A few days ago our Mr. J. G. Brown, one of the Colorado sufferers, and who came to Medina to work for the A. I. Root Co. because his business was ruined by the spraying of fruit-trees, offered an explanation. He says that the spraying of fruit-trees, even when in bloom, when there are no cover crops or clovers beneath the trees, does not necessarily poison bees. So far he agrees with Mr. Woodworth. The orchardists of Colorado, acting on the advice of their entomologist, Prof. C. P. Gillette, have been in the habit of spraying before and after the trees are in full bloom. Very frequently such spraying will be applied before the petals begin to fall. Against such spraying there is little complaint; but when the orchardist grows a cover crop to fertilize the soil of the orchard, the spraying liquids fall down on the clover-blossoms, which are in just the right shape to catch the full strength of the poison. It does not matter whether the trees are in bloom or not. The sprays fall down on the clovers that *are* in bloom, the bees visit them, and are destroyed by the thousands. One yard of Mr. Brown's bees is practically ruined. Many colonies were killed outright, and others were so weakened that he could not do any thing with them. One of his neighbors, an orchardist, stoutly protested that the sprays that fall on the cover crop did not kill bees, saying that the cause was to be accounted for in other ways. He had, he said, a few bees in his orchard, and these bees were all right. Mr. Brown told him that he must be mistaken; and to convince him of his mistake the two examined the bees that were supposed to be "all right," with the result that they found them nearly all dead. Mr. Orchardist was convinced.

Many of the fruit-growers acknowledge that the sprays that fall on these cover crops kill bees; and so far as *they* are concerned they will do any thing that is reasonable to save the lives of the bees, for bees they *must* have. Other orchardists are not willing to make this admission. Unless all the fruit-growers will co-operate, bees will be destroyed by the thousands, and a big industry will be practically paralyzed.

The question will be raised, "Why have we not heard of this wholesale destruction of bees in Colorado before?" Mr. Brown explains it by saying that green manuring —that is, growing cover crops beneath the trees—to renew the soil is a comparatively recent practice. Orchardists over nearly all the country have learned that one of the simplest and most economical ways of doing this is to plow under a crop of some sort. Crimson clover has been used largely for the purpose. In Colorado red clover is used almost entirely; but it happens that it is in full bloom before the spraying season is over. The poisonous liquids that fall from the trees drop on the clover-blossoms, then

the bees get them. As these clovers furnish nectar when there is nothing else, bees are killed by the thousands.* Sometimes the spraying is applied on the trees before all the petals have fallen; but if no more nectar is yielded, no harm is done to the bees. So the spraying of orchards *before* cover crops were used, did little or no harm to the bee-keeping industry. The damage occurred only when there was ignorant spraying, the poison being applied when the blossoms were full of nectar. But such spraying has practically gone out of vogue. But the recent introduction of green manuring in the State has brought on a new and serious problem, because the bees, naturally enough, will help themselves to the nectar in clover-blossoms.

The only remedy seems to be in cutting the clover just before it comes into bloom, or turning it under. The best authorities on soil culture recommend plowing the clover of cover crops under *before* it blooms, because at that stage of growth it makes a better fertilizer. Whether all the orchardists can be induced to see that this would be to their advantage as well as that of the beekeepers is doubtful. For that reason remedial legislation will have to be enacted, for there will always be a few who will persistently remain ignorant, for no ignorance is so dense as prejudice. There will always be some who imagine that bees are stealing something from their fruit-trees, and that the bees are of no use to them. Considering the fact that a large number of intelligent fruit-growers will not wish to destroy their best friends, the bees, and will favor suitable legislation, and the further fact that *all* the beekeepers will unite with them in asking for a law that will protect their common interests, it is to be presumed that the legislature of Colorado will, at its next session, provide the needed relief. If it does not, we are informed that something like 5000 colonies on a conservative estimate will have to be moved out of the vicinity of the orchards on the western slope; and this will cut down the fruit crop over a large section of the State, and at the same time have a tendency to overcrowd other locations in Colorado that are already overcrowded with bees.

Later.—Since writing the foregoing the following extract from a paper read at the Montrose Co. Beekeepers' Association meeting has been sent us. The author of the paper, O. C. Skinner, of Montrose, Col., is the Speaker of the House of Representatives of Colorado. Here is what he has to say confirming to a great extent what we have already said above:

> The beekeepers of Colorado, and especially those located within the fruit belts and on the western slope, have been heavy losers this year on account of the poisoning of bees and larvæ with spray poisons.
>
> The new Colorado law, passed by the last General Assembly, prohibits the spraying of fruit-trees "while in full bloom," and it was thought that this would sufficiently protect the beekeepers from this danger; but in place of the regular fruit-blossom-spray danger, another has arisen to plague the honey-gatherers.
>
> Many orchardists, especially on the western slope, which is an extensive fruit section, have begun to plant a cover crop under the trees in order to fertilize, and to protect the surface from sun and wind and drouth. In that locality the cover crop usually chosen is red clover, and the danger now developed is that this clover blooms long and vigorously, after the trees have shed their blossoms, and when the law as it now reads will allow spraying, for the trees are not "in full bloom."
>
> The result is that the beekeepers in the heavily fruit-growing sections have been almost put out of business, some having not only lost all the honey crop, and failed entirely on increase, but also lost many stands of bees from dwindling.
>
> Around Montrose the loss was very heavy because there is a lot of red clover used as cover crop there. The spray mixture falls on the blossoms of the clover; and while it is generally supposed that bees do not work extensively on red clover, yet in the season of 1914 they worked enough to make the honey business almost a failure in that locality. It is suggested that the year 1914 was conducive to the small growth of the flower of red clover, making it easily worked on by bees, and therefore more to be dreaded than in ordinary years, but that is not proven.
>
> The effect of the spray poison is quickly apparent, the bees hopping along the ground, unable to rise, and those which do yet fly exuding a yellowish or brownish watery mixture, which can readily be seen on the ground and on the hives. On crushing the dead bees, this yellow excretion will be seen to exude.
>
> Among the orchardists who were driven from the orchards of that locality are J. C. Mathews, who had to move two apiaries; J. J. Corbut, Will Corbut, A. B. Clement, and O. C. Skinner; while the Allen Bros. and J. G. Brown held their bees in the orchards, and especially in the case of the former, an entire loss of crop and a heavy loss of bees resulted.
>
> In any yard located in the fruit belt, in the early morning, and just after the bees had begun to fly lively, the ground in front of the hives would be literally covered with sick bees trying to fly, or crawling along the ground, while at any time of day the dead bees could be found all about.
>
> J. C. Mathews got little or no return from the bees he moved out of the orchards. The Corbuts had about the same results. A. B. Clement got no returns from those he moved out, but saved the bees. O. C. Skinner moved his apiary into two new ones, and got about a quarter of a crop of honey from one apiary and a fair number of swarms; but from 142 moved later to another location he got no honey whatever; had no swarms at all, and the original 142 colonies are now reduced to 114, with a fair chance that there will not be over 100 left in the spring. This latter heavy loss was probably due to having the apiary, as located before moving, directly alongside a clover-field under fruit-trees, where the bees worked constantly. It seems that the bees were so reduced before moving, and so discouraged, that they did not even build up properly for winter.

* The fruit-men know that these crops should be plowed under before they come into bloom; and about the only reason why they don't do it is because they are too busy with their spraying.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



EXPERIMENTS reported p. 987 seem to show that poison which kills codling moth doesn't hurt bees. The proof is negative, but I suppose it will have to stand unless some one comes along with positive proof that in another case it does kill bees. [See editorial elsewhere.—ED.]

CONSIDERING the pages and pages that have been written about the trouble with candy and syrup, I wonder if we won't some day settle down upon it that the wise thing is for each beekeeper, if he can't have on hand a stock of sealed combs, to have at least enough candied honey, "own make," constantly on hand to meet all emergencies.

G. M. DOOLITTLE 'fesses, p. 973, that he makes mistakes and failures. Thank you—thank you kindly, Bro. Doolittle; glad to have company. Then Editor Root admits that he doesn't know every thing by appealing for "light on this matter" of feeding honey vs. sugar, p. 963. Really, one great beauty of beekeeping is that you never get to the end—always something more to learn.

"LIGHT fluffy snow" to close entrances when cellaring bees, p. 963. Good! Wet rags when no snow. Better than either, the way mine were carried in this year—just picked up and carried in with open entrances, and no veils. That should be possible at 40 degrees or lower, when bees have flown two or three days previously. Mine went in the same day as yours, Dec. 8, at 26 degrees.

GEORGE SHIBER, you use the Doolittle plan to shake bees off extracting-combs on the ground, p. 988. With heavy combs I wonder if you wouldn't find it a little quicker and a good deal easier to try the pendulum plan. Take hold of one end of the top-bar; swing up the comb in front of you with the bottom-bar pointing forward, then let the other end of the top-bar strike the ground with comb in such position that the corner of the frame on the ground and the diagonally opposite corner shall be in a vertical line.

ONCE when I was at Medina a colony with American foul brood was at night thrown into a furnace, and hive, combs, bees, every thing, burned up. That's a safe treatment. Yet you would hardly advise it, Mr. Editor, nowadays, even for a careless beekeeper, if he had a dozen affected colonies. You would certainly save the bees, and probably the hive and the healthy brood. You think, p. 882, that if you had European foul brood you'd destroy the combs. Likely enough, just as at first you destroyed bees in cases of American foul brood. But I feel sure you would learn that it is just as safe to save combs with European foul brood as it is to save bees with American foul brood. Moreover, please remember that with me European foul brood came back as much with shaking as with dequeening. Say—isn't it a bit ungrateful in you, Mr. Editor, to go back on me for advocating the saving of combs in European foul brood when I began it just to please you? [No, we did not go back on you. We stated that, with your knowledge and your environment, we would do exactly as you are doing. We only thought it was a little dangerous to tell the general public that it was safe to use the old combs over again that have been affected with European foul brood. While it is true we originally promulgated the idea that such combs could be saved (and we believe they can be in the hands of an expert), yet we, as publishers of GLEANINGS, are dealing with the great masses who are not experts; hence our advice to burn the combs as a general proposition. While we believe *we* can save the combs of European foul brood, yet on the other hand we are selling colonies in nuclei to beekeepers all over the United States; and it would be unwise for us to send out any combs, even after they have been cleaned up by the bees, that have once contained European foul brood, and we would be severely censured if we did. You yourself would follow our policy.

We realize the fact that it is a little difficult to be entirely consistent clear through unless we take into consideration the parties with whom we are dealing. It does look as if we were reversing our policy to advocate burning the combs of European foul brood when it was we who made public the Alexander treatment and published many articles indorsing it, showing that the combs of European foul brood could be saved. If we had it to do over again we would do it again, because in so doing we would save experts thousands of dollars. If we were in the business of honey production only and were not shipping bees or colonies, we would burn no combs containing only European foul brood, because we believe our knowledge and experience would enable us to do just as you have done. There, now, doctor, have we made ourself clear?—ED.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The loquot and eucalyptus are furnishing the bees a source from which to get an encouraging amount of nectar and pollen for winter encouragment.

* * *

A heavy rain has fallen during the past twenty-four hours (Dec. 12). This will insure the early-blooming flowers sufficient moisture to bring them forth on time and in abundance. Early breeding is all but assured. This, with the already prosperous condition of colonies, will have a tendency to increase the size of the crop, even with a light flow.

* * *

Certain blooming periods are given in "Honey-plants of California," as applied to the pepper-trees. Except that they begin blooming in early spring and continue until winter, they have no distinct blooming period. There are several trees near my home that are blooming now, Dec. 12. I do not mean to say, however, that every tree blooms constantly from early spring, but there are trees in bloom during that period.

* * *

A word of warning to those who are contemplating a move to this State to take up the bee business: If you are doing even fairly well where you are, better stay. There are hundreds contemplating the move who are only doomed to disappointment, at least for a time. Conditions are so different from those in the East that one must become acquainted with the ways of the West before it is possible to make a success of the business here. There are many Eastern beekeepers here who have made the assertion to the writer that, if they were now in the East with the experience they have gained in the West, they could make the business pay more dollars there than here. But all agree that they are willing to do with fewer dollars for the sake of the climate. But climate will not keep us all, and the real problems must first be solved by those acquainted with conditions here before a full measure of success can be realized.

* * *

Mr. G. H. R., page 926, Dec. 1, your explanation has cleared matters greatly, as I see it. The fact that the colony of which you speak drew out six sheets of foundation with but one quart of syrup does not prove the syrup was wholly responsible for the six sheets of foundation having been drawn. I have solved it like this: The syrup caused the bees to draw the foundation. That is what was done in this case, and not merely the addition of wax to the foundation. The ordinary medium-brood foundation is much heavier than is utilized for the base of the comb; but the cells are drawn to a greater or less degree from the foundation without the addition of a single wax scale by the bees pulling up the surplus wax into cell formation. I am of the opinion that has been the case with your foreman's experiment. Take a sheet of light, medium, and heavy brood foundation, and measure the base before placing in the hive. After they are drawn, examine the base and you will find that it is much thinner than when placed on the hive. Take the same sheets when drawn from 1-16 to ¼ inch and you will find the cell construction the same color as the base. There is little foundation drawn by bees the base of which is not reduced before the cells are completed. [See article by R. F. Holtermann on this subject, page 13.—Ed.]

* * *

Whether the editor of the *Beekeepers' Review* was alluding to the California State Association or some other in the November issue, I am not able to say. However, he came near hitting the nail squarely on the head so far as this State is concerned. It seems to me the selfish attitude we have assumed in this is little less than inconsistent. I am not a member of the National, but expect to return to it very shortly. The reason I am at this time not a member is that I was influenced by a prominent member of the California State Association to hold allegiance to our own association only. I see by the actions of our own association in its efforts to organize county clubs to enhance the value of the State association that there must be strength in organization. So I have come to the conclusion that, if there is strength in a State association, there must of necessity be a greater strength in the National; and it is my opinion that we shall soon see the California State back in the fold of the National. It should be. There is no valid reason why it should not be. I was told, when persuaded to leave the National, that we needed the money to promote our own association. Naturally I was interested in our own organization, and decided to obey suggestions. Now I see where I was weak, not only in paying my

Continued on next page

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



With the winter setting in early in the east and central States, it has been the opposite here in the West. We had no snow or cold weather to speak of until early in December. Bees have had a favorable season so far; and with a fair quality of stores there should not be much loss in wintering.

* * *

With the postoffice officials giving orders for more care in handling packages it may not be long until honey may be sent safely by parcel post. I was told by one of our postoffice clerks that honey is a liquid while eggs are not. This being the postoffice ruling, he would not accept honey for shipment by parcel post unless there was absorbent wrapping enough around the package to absorb all the honey in case the package should be broken and the honey leak out. I think that, with the effort the Postoffice Department is making to extend parcel post, a few more disastrous leaks of honey will have as beneficial an effect on handling parcel-post matter as it will detrimental. Until the department will accept and carry the same class of package goods as the express companies it will not fulfill its rightful sphere.

* * *

WHAT TO DO WITH COMB HONEY.

I have had some discussion with beekeepers as to the advisability of selling cull honey on the market at all. Some take the position that this honey should be fed back to the bees or rendered. Cull comb honey weighs about 16 pounds net to the 24-section case, and sells locally at $1.75 to $2.00 a case. It retails for 10 cents a section, or three for 25 cents. There is no doubt that it tends to lower the price of the higher grades. On the other hand, there are a great many people who will buy this honey when they would go without if they had to pay 15 to 20 cents for a section. There is an increasing amount of fruit being sold in bulk. Peaches are being sold in bushel baskets instead of small baskets and boxes, and it is because they are cheaper. The expensive methods of packing and marketing produce do not appeal to all buyers. Having on hand about 35 supers of unfinished comb honey weighing about 10 lbs. net to the case (deducting the weight of the section), I started selling it locally by weight at 10 cts. a pound, and it is the best "come again" trade-getter that I have seen for some time. It can be carried home either in the sections, or broken out of the sections and carried home in a pail.

* * *

STAMPING THE WEIGHTS ON COMB HONEY.

The point raised by Mr. Burnett, page 922, Dec. 1, regarding incorrect stamping of the weight on sections of honey, is a good one. In Colorado we have been packing our honey in three grades, with a minimum weight for each grade. When we have a section of honey that will not grade more than No. 2 on account of a few unsealed cells the weight is stamped "Net weight not less than 10 ounces." This section in many cases may weigh 12, 13, or 14 ounces net. All the sections in a case are stamped the same net weight, but they may not weigh the same, although the most careful packers keep sections of uniform weight together in a case. A heavy-weight case of No. 2 comb honey may weigh 15 or 16 ounces net weight; but if it is No. 2 on account of finish or color, each section is stamped "Net weight not less than 10 ounces." This statement on the section may be true; but it is not accurate, and does not help the sale of the honey.

The rubber stamps that the writer has seen do not have the lettering of the net-weight minimum large enough; and instead of printing it this way, "Net weight not less than 12½ oz.," it should be printed this way: "*Net weight not less than twelve and one-half ounces.*" I would think further that the half-ounce weight should be discontinued, and only even-ounce weights used.

With a good set of rubber stamps with the lettering large enough it is not difficult to do rapid and neat stamping. It is not a difficult matter to get the stamp printing straight across the top of the section, but I have seen a lot of twisted work done.

Continued from previous page

local dues without question, but in failing to stay with the National. There is no class of producers in our land who are as timid about paying out a little money for organization and advertising as the beekeeping. The difference in the amount of cash that comes into our hands marketing our produce as we do, from what it would be with constant and judicial advertising, is so great that we would be astonished at the results of advertising.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



The common dandelion is one of the hardiest plants in our latitude. About Nov. 18 we had a cold snap for two days in which the thermometer dropped to zero for a few hours. Early in December, on a mild but by no means warm day I noticed quite a few dandelions in full bloom on a southern hillside. There had been no snow, and I was surprised to find the bloom withstanding the recent zero temperature.

* * *

I am interested in the discussion regarding the comparative value of late swamp pasturage as compared with feeding honey or sugar to build up small colonies in good condition for wintering. One factor has not been mentioned, which would have a great bearing on the success of such experiments here in Ontario. The colonies fed in early fall on good sugar syrup would be almost sure to winter if given any ordinary protection, no matter how severe a season might follow. On the other hand, experience has shown that, taking one year with another, late fall honey such as aster and goldenrod, are very uncertain provisions indeed in so far as the wintering of the colonies having this honey is concerned; consequently there is no question but that it will pay us best, when occasion so requires, to depend upon the artificial feeding instead of moving to fall pasture. By fall pasture I have in mind any honey coming in after September in our locality. Buckwheat with us has generally proven a good wintering food; and when it has seemed to give trouble, generally the presence of some honey-dew would explain matters.

* * *

When sending notes for the Dec. 1st issue I mentioned the fact that October and early November were unusually mild for our locality. As usual, one extreme follows another, as the saying goes, and we have had, since about Nov. 12, steady cold weather. To-night, Dec. 14, the thermometer is standing at 2 below zero, and a heavy wind is blowing from the northwest. Bees have had no flight to speak of since the last of October, which is quite different from the record of the past two years when flights occurred in early December.

Naturally this means a longer confinement for the bees wintering outdoors, assuming that spring flights come about the same time as other years. This may or may not mean quite a difference in wintering prospects, especially where the bees are wintering on natural stores of quality none too good, as a late fall flight often means the saving of many colonies that would otherwise suffer if the flight were not available. We are especially concerned about the large apiary wintering on stores, much of which consists of aster honey gathered in September. Not having a late cleansing flight I would not be surprised if the loss might be heavy. But there is no use in borrowing trouble; and, for all one knows, perhaps we may yet get a "January thaw."

* * *

LOCALITY, AND HOW IT AFFECTS THE FLOW OF BUCKWHEAT.

The much abused term "locality," after all, does have a great deal to do in explaining differences that are otherwise unexplainable. For instance, if a beekeeper would have told me that buckwheat yields in the morning, then stops and again yields toward evening, if I did not know my informant well, would either question his veracity or think his powers of observation were out out joint. But on page 834, Nov. 1, the editor says that this is a fact in New York. Of course I believe the statement, even when I am positive that bees never get nectar from buckwheat here in Ontario after it stops yielding about noon, as it always does with us, except on damp warm days when the sun is partially obscured, when it may yield till 3 or 4 P. M. It is all a question of locality, and the vagaries of this same factor should make us a bit more charitable sometimes, instead of questioning too much the experience of some one which seems so diametrically opposed to our experience as to be unbelievable. [In this "locality" bees never work on buckwheat more than two or three hours in the morning, and again an hour or two in the late afternoon. The explanation is, too many bees for the amount of flora. In the State of New York, if we remember correctly, there were places where the conditions were about the same as those you report; but in most places the rule seemed to be about the same as in and near Medina.—ED.]

* * *

Owing to rural routes being established in our section, my postoffice is now Markham instead of Mount Joy. Those writing me will kindly note the change.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



CARE OF COMB HONEY.

"Will you tell us something about the care of comb honey—how to look after it when taken from the hive, grade it, etc.? You may have written something of this in the past; but remember that the constantly increasing number of readers of GLEANINGS do not all have access to the volumes published years ago."

Allow me to say at the outset that it should never be forgotten that honey of quality, and in any of the popular packages, will constantly command a good price, far above that of poor quality, put up in a slipshod way. The better grade tempts every eye, thus producing a longing which makes a steady customer. I was once told that no product of field and farm varies so much in price as comb honey. On asking why, I learned: "It only requires to be put up attractively to create a demand for all that can be produced in America." While I would take this statement with allowance, I consider that there is much truth in it. Comb honey has the preference for table use at the present time; and if we would cater to the public we must produce that article in the most attractive shape.

This is arrived at by growth. In 1850 to '55 the smallest package of comb honey marketed as the bees stored it in this locality was a fifteen-pound box. By 1862 a six-pound box having glass on two sides came into quite general use. The year 1870 found the beekeepers using boxes holding three and four pounds with four glass sides and tin for corner posts, only the tops and bottoms being of wood from ⅜ to ¼ inch thick. These were very attractive, as they not only showed the nice white face side of the comb, but told at a glance at the ends of the combs the coloring of the honey, which was a fair index of the quality and source of the sweets inside. However, the beekeepers were not yet satisfied; for after these came the sections which were then two and three pound "boxes," and these gradually gave place to the one-pound section.

Comb honey should be taken from the hive as soon as it is finished and fully capped over, or as soon thereafter as possible. No apiarist can expect to have his honey sell for the highest market price if it be allowed to stay on the hives for weeks after it has been sealed over, allowing the bees to give the white combs a dirty-yellow color by their constant travel over it and the brood-combs below. Honey, while on the hive, is evaporated mainly by the heat produced by the bees; and, therefore, if we expect to keep our honey in good condition for market we must keep it as the bees do—in such a condition that it will grow thicker all the while. It should be stored in a room where the mercury can be kept standing at from 80 to 95 F. If stored in this way no honey will drip from any open cells during crating, neither will any of the combs have a watery appearance; but all will be bright, dry, and clean. The supers of sections should be separated so that the warm air can circulate freely all through—under, over, and between each section. Only in this way can the dry warm air treat each section alike. When crating, one should pack sections as nearly alike as possible as to kind and quality of honey as well as to white capping and perfection of combs.

The marketing of honey is a subject that interests every apiarist. As hinted before, it must be attractive. Has it ever occurred to the reader to inquire why the best-selling oranges are rolled up in fluffy paper with lithographs of enchanting faces and bewitching scenes? or why bolts of muslin are labeled with pictures of luscious fruit? No matter how good the quality, our comb honey must please the eye. Hence, instead of loading a bottomless fifteen-pound box into a springless wagon with the bottom covered with straw, as my father did in the early fifties, or putting twenty six-pound boxes into a crate, as did the writer in the early seventies, we now put from twelve to twenty one-pound sections into a no-drip case with a corrugated paper bottom and glass sides. So the attracted customer has dealt out to him a single comb of honey, which, when removed from the section, is far more inviting than all the lithographs the human mind has ever fancied.

All comb honey should be graded and a scale of prices established, based somewhat upon market quotations in the large cities. Remember that transportation and commission will amount to two or three cents per section, besides the risk of breakage in transit. So a sale at home can be made at a cent or two less than market quotations, even though it has to be retailed.

A little practice will make any one efficient along all these lines. If these suggestions are followed, no one can accuse the apiarist of "dumping" honey to break down or ruin the market.

GENERAL CORRESPONDENCE

STIMULATIVE FEEDING IN SPRING; WAX FROM A QUART OF SYRUP

BY R. F. HOLTERMANN

There has been so much said about stimulative feeding that it appears almost presumptuous to attempt to add to that which we now have upon the subject.

Dr. C. C. Miller, in Stray Straws, page 925, Dec. 1, says, "The average beginner is deeply impressed with the idea that, whatever his bees are doing in the way of brood-rearing, may be doubled, or at least increased, by stimulative feeding." It took me quite a number of years in keeping bees to realize that stimulative feeding did not always, by any means, tend to the advantageous rearing of brood of a colony; in fact, the beginner would do better to see that the bees have plenty of stores, and then let them do the rest. Dr. Miller goes on to say, "I don't think I have seen the time in 50 years when any amount of stimulative feeding would yield a cell more of brood in my apiary. How could it if the bees already have all the brood they can cover? Of course there are places, as mentioned by P. C. Chadwick, p. 885, where at times there are such breaks in pasturage as to stop the queens' laying, and then stimulative feeding pays big. But in general the notion that the queen should be whipped up in spring to lay more is all wrong, does no good, and may do harm."

The editor, in a footnote, agrees with the above, pointing out the value of feeding under certain conditions for queen-rearing. With the above I can heartily agree, although, even if Dr. Miller has a continuous flow during the spring, surely he must be very exceptionally favored if he has not adverse weather at times when stimulation would be an advantage. It is a safe rule for the beginner not to attempt stimulative feeding. With many, judicious stimulative feeding would be an advantage.

Let me point out an exception. Say the safe rule not to stimulate is when, during spring, there is a continuation of blossoms and the bees work on them daily. The bees bring fresh stores into the hive and the queen is fed liberally, resulting in a liberal production of eggs and brood-rearing. I do not require to look at the combs for the eggs. I know that, under the above conditions, with a normal queen they are being deposited. I have examined colonies, and found that they record their spring activities by the age and amount of brood in the combs. In fact, it is known to some of us that a colony, if vigorous, is likely to swarm about three weeks after many eggs have been deposited by the queen—in other words, when these young bees are due to emerge from the cells. Take fruit bloom such as apple, cherry, plum, etc. With us, if the weather is fine, much brood will be found in the combs as a result of fine weather, enabling the bees to work on this. But quite often the weather is not fine, and the bees are not stimulated to heavy brooding, and yet the numerical strength of the colony is not one whit less. In such a case I believe stimulative feeding is an advantage. Make the colony in some way handle stores, and the queen will get her share; and she will do her share in producing the brood. I know of no more convenient and better way than to bruise stores in the combs. Start a cell of honey leaking, and the bees will remove the honey and put it about the brood until used for bees or brood. If the stores are not in the hive I would not hesitate to use a feeder with a thin syrup. *Thin* syrup fed in spring saves the bees the trouble and danger of gathering water.

Colonies packed during the spring can rear more brood than those not packed. They are less susceptible to changes of temperature. I know this is true in northern localities, because I have had packed and unpacked colonies side by side in the same apiary.

After a cold night or during decidedly cold days the bees in the unpacked colony are quite inactive on the outside of the cluster, while at the same time those packed were passing at will over the combs in the hive, and therefore better able to supply the requirements of the brood.

When the beginner thinks he is getting to be a very clever beekeeper, and knowing a lot (I think that disease breaks out about the second or third year) he had better be careful lest he do a lot of harm by stimulative feeding; but it seems to me there are times when bees can be stimulated to advantage, and, when possible, this has the effect of increasing the strength of the colony.

Let me say, before I forget it, feeders should not be put on colonies during daylight when the weather is too cold for the bees to fly. Outside stimulative feeding is the most convenient but not the best. First,

there is the danger of the colonies belonging to neighbors getting a part of the supplies; next, the needs of the colonies are not always in proportion to the numerical strength of the colony. Instead of putting open food out in the morning I prefer to put it out as late as possible in the afternoon so long as the bees can get it before it is too cool and dark for them to fly.

SUGAR SYRUP TURNED INTO BEESWAX.

Mr. Editor, will you let me suggest a solution to your statement that your foreman, by feeding one quart of sugar syrup, half sugar and half water, had six frames of foundation half drawn out? My solution is that the side wall of the comb foundation is often thinned and elongated, and therefore a large part of that side wall was made out of the wax side wall, and perhaps a part out of the base of the comb foundation. To test this matter the frame with foundation should be weighed when given to the swarm, and then weighed after the syrup has been fed, and the foundation built or drawn out. Some fifteen years ago I carried on some experiments in connection with my position as lecturer and experimenter in apiculture at the Ontario Agricultural College, and I blackened the wax of which the foundation was made by stirring lampblack with the wax when melted. When the bees were put on this foundation, and built the comb thereon, there was no difficulty in detecting, by the black or shade of black, just how far and to what extent the bees utilized the comb foundation.

The report of these experiments is given in full on pages 358-9 of the May 1st issue for 1896. The following extracts from that report have a bearing on this particular question:

In our experiments, observations were taken along various lines—*first*, as to what extent, if any, the bees thin the base and side wall of the various thicknesses and kinds of comb foundation. Measurements were made, whenever possible, of the weight of foundation compared with the number of square feet, and thickness of the base of foundation. Measurements were taken of the comb at the base, the side wall close to the base, and half an inch up the side wall. The comb was put on ice to harden it for the purpose of more accurate measurement; and three measurements were taken in this case.

Again, to see just how the bees utilized the comb foundation, three tanks of melted wax were prepared. One was colored with a preparation of alkanet, another with a preparation of carbon, and the third was pure beeswax, uncolored. The various stages in the manufacture of comb foundation were carried out, giving comb foundation from each tank ten, twelve, and fifteen feet square to the pound.

These were placed side by side, and drawn out in the upper stories by the bees. It was manifested in various ways that the bees objected to the alkanet, so this kind was discarded. To the foundation, colored black with the preparation of carbon, the bees did not object. The object in placing foundation made of ordinary wax alongside of the colored, was to make measurements of each kind when drawn out by the bees. The measurements of the colored and uncolored, being identical, gave us a basis for the statement that the bees did not object to this preparation; and the method of drawing this out was identical with that of ordinary foundation. The base and lower part of the comb were not, as we might expect, of a black color, and the fresh and added was white. Instead there is a regular graduation from black at the base to white at the top of the cell. The heavier the foundation, the darker the base and adjoining side wall.

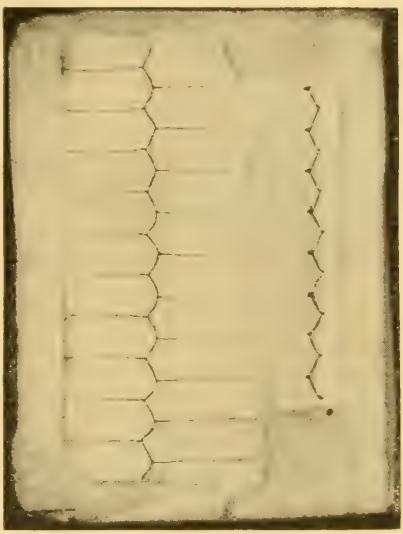


FIG. 1. (c)—giving a side view of comb foundation, 15 sq. ft. per pound; and the same after the comb has been completed and capped by the bees. The honey has been extracted, and washed away from the comb, and a section cut down, which, after a thorough drying, has been filled with plaster of Paris.

From the above it would appear reasonable to expect that the bees keep adding scales of newly secreted wax and then pulling the side wall, thus decreasing gradually the percentage of colored wax. We also conclude that the quality of wax used in the foundation has an influence, not only on the base, but, to a certain extent, in almost the entire wall of the cell. The heavier the foundation, the greater the influence on the side wall. Again, notes were taken daily when the bees were beginning to draw out the foundation; and although the heavier foundation was scattered about in the various parts of the upper stories, they gave the preference to the heavier foundation, working on it first. Great caution must, of course, be observed in coming to conclusions. The bees, if the heavier foundation had been taken away, might have been almost as willing to go to work at once upon the lighter grade. At present no way appears open for conducting a satisfactory experiment to prove any thing in this direction. The measurements taken at the base of the wall, and half an inch from the base, all tend to show that the wall is thicker at the base, and tapers, becoming thinner at the mouth. So far as I am aware, no one has ever made such measurements.

The "Vandeusen" is a flat-bottom (unnatural) foundation. The various specimens of this kind which were put into the sections were partially covered to prevent the bees from touching the covered portion. The remainder was left to the bees. In every case the bees changed the base from flat-bottom to natural.

If Mr. Chadwick thinks that all the wall on the foundation, beyond what depth there was on the wall when inserted, is made of beeswax produced by the quart of thin syrup, this is not necessary. I have weighed sheets of foundation when put in the frame or hive (using seven Langstroth sheets to the pound weight). Then after the comb was built out I again weighed the drawn comb and found that the bees just doubled the weight of wax in the frame. If a part of the wax in the comb foundation had not been used for the elongated wall I do not think there would have been so little difference. Herein is shown an added value in comb foundation. It saves wax secretion and the expenditure of honey, and I almost invariably use full sheets of foundation whether in the brood-chamber or the supers, be they for comb or extracted honey. If a swarm is thrown on the foundation we must remember the bees are in the best shape for secreting wax, and that they will have a lot of wax scales on the abdomen, and, in addition, will be full of honey.

Brantford, Canada.

IOWA ANNUAL CONVENTION HELD AT AGRICULTURAL COLLEGE

BY F. C. SCRANTON

In order to secure the advantages accruing from a meeting at the Iowa State Agricultural College at Ames, which, by the way, is one of the foremost institutions of its kind in the country, attracting students from points as distant as China, it was necessary to set the dates a little earlier than usual. The attendance would have been somewhat larger had the convention been held a month later; but those who gathered there were deeply in earnest. They came for information, for help, to learn how to do their work quicker and better, and every one got what he or she (for there were also a number of ladies in attendance) came for.

The morning session of the first day, Nov. 17, was given over to the usual routine work such as president's address, report of secretary, reports of committees, and appointment of committees. Following this the secretary, Mr. Snyder, read a letter from the Woodbury Beekeepers' Protective Association, urging that legislation be enacted prohibiting one beekeeper establishing an apiary within a certain distance of another beekeeper's apiary, and suggesting that the association enact by-laws making it an offense for one member to establish an apiary within three miles of the apiary of another member without the consent of the member whose apiary is already established. Violation of this would subject the guilty member to a fine of from $3.00 to $10.00 for each colony in his apiary.

In the discussion of this paper it was shown that so many conditions, such as locality, season, topography, etc., enter into the subject that it would be impossible to set any exact limits which would be perfectly fair to all. The number of colonies already located would also affect the question of distance apart.

On the afternoon of the 17th, Prof. Bartholomew gave a "short-course" lecture, using a large model of the bee. His audience was deeply interested throughout the talk. He showed why it is impossible for bees to bite the skin of fruit; compared the æsophagus to the crop in a chicken; showed how the honey-sac is filled with honey in winter, and how it passes through a valve into the stomach as needed; explained how the blood of an insect contains no oxygen, fills all spaces between cells in the body, and how it is supplied at these points with oxygen, and how a constant circulation of this fluid is kept moving through the body.

On the evening of the 17th, C. P. Dadant gave a history of beekeeping. This was followed by an illustrated lecture on nectar secretion and the honey flora of Iowa. It was both interesting and instructive.

At the morning session on the 18th, Dr. Phillips, of Washington, D. C., gave a very instructive talk on temperature and moisture of the hive in winter, both as concerns outdoor and cellar wintered colonies. In conducting his experiments along this line he seems to have established the fact, as stated in the Nov. 15th issue of GLEANINGS, that the bees forming the cluster in winter are not dormant during cold spells, as was formerly accepted, but that they form a sort of ball, the bees in the outer layer of which take a position with their heads pointing toward the center, and remaining very nearly motionless, while those inside this circle fan with their wings, move about, and attend to raising and lowering the temperature. He laid particular stress upon the fact that, when bees are wintered in cellars, proper attention should be given to ventilation and to eliminating moisture from the cellar.

Mr. W. S. Pangburn, of Center Junction, Ia., talked on the subject of cellar wintering. Mr. Pangburn is counted a very suc-



Iowa convention at Ames, November 17-19.

cessful beekeeper; and not only that, but he is also a good farmer.

Prof. Francis Jager, of the University of Minnesota, told what the agricultural colleges can do, and what the Minnesota college is doing, to further the cause of beekeeping.

Most of the afternoon was given to various demonstrations by different beekeepers. Mr. Hall, of Colo, again showed how he fastens foundation in sections, and how he folds his sections, as well as his method of putting full sheets in brood-frames.

Dr. Leonard, of Minneapolis, who is a champion of the split section, showed how to insert foundation in split sections, four at a time, and without several unnecessary handlings of the sections.

Mr. Pangburn demonstrated his method of fastening foundation in sections with but one handling, they being ready for the super when he finishes fastening the last sheet.

In the evening Dr. Burton N. Gates, of Massachusetts, gave an illustrated lecture. While there was some delay in getting the lantern to operate so the slides would show, there was no lack of interest in his lecture.

The meetings on the 19th were devoted to discussions and to cleaning up the business, such as reports of committees, etc.

Officers elected are as follows:

President, Prof. Bartholomew, of Iowa State College, Ames, Ia. Vice-president, B. T. Bleasdale, Des Moines, Ia. Secretary-treasurer, S. W. Snyder, Center Point, Ia. Directors: W. S. Pangburn, Center Junction, Ia.; J. W. Stine, Stockport, Ia.; A. P. Chamberlin, Des Moines, Ia.

The next annual meeting will be held at Des Moines, at a date to be announced later.

Des Moines, Iowa.

DESCRIPTION OF THE SEVERIN 1914 MELTER

BY F. J. SEVERIN

My latest 1914 design of capping-melter surpasses my 1911 model shown on p. 724, Dec. 1, 1911. It keeps itself clean, and melts the cappings, or whatever there is to be melted, more quickly, and holds only about two gallons of water as it is not so large as the old melter. This 1914 melter requires only one burner on a gasoline-stove. It has only 17 x 13-inch melting surface; but it contains 221 half-inch tubes one inch in length. In other words, it takes nearly 18½ feet of half-inch tubing. The melter top is flanged out wide enough to be 23½ x 19½ inches, and is 7¼ inches deep to the top of the tubes. See Fig. 1. Four frames may be put in when uncapped ready for the extractor. There is a place for two uncapping-knives at the right of the operator, 7½ inches wide by 9 inches deep, taking any size of knife up to 9¾ inches in length.

One inch below the tubes is a spout 6½ inches wide and 3½ long, for the escape of

the honey, wax, and refuse. A waterway of fully half an inch is below the spout. A screw cap lets water out of the melter without tipping it up.

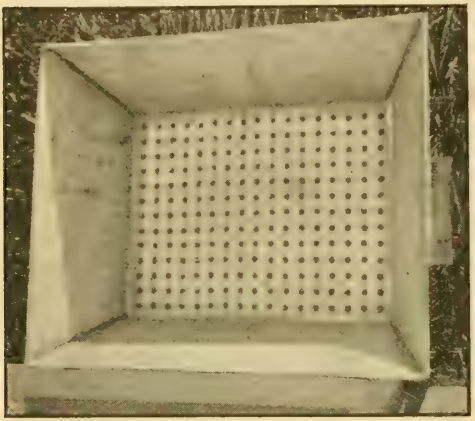


Fig. 1.—Top view of F. J. Severin's new capping-melter, showing the tubes.

The outside is made of heavy Teuton iron resembling galvanized iron, and will resist rust and wear longer than galvanized iron.

The tubes are made of seamless brass tubing, above and below, and are soldered into sheets of heavy tinned copper. The partition catching honey, wax, and slumgum, is also of heavy tinned copper. The tubes are well covered with hot wax and honey as soon as made. These holes are well rimmed out smooth so the cappings and honey will pass through as soon as melted. Having a flat melting surface it melts very rapidly, and will not run down as with a sun-extractor when tilted too much. This melter is supposed to stand level. A flat wooden paddle is used to scrape back and forth the refuse if one is cutting many dark tough combs. I have taken old black combs, broken them loose from the frame, laid them flat in the bottom of the melter, and then uncapped in the clear place, and in a very short time I could take the paddle and pull it through the comb when it would break and crumble up as if the sun had hit it in a good solar extractor. This could not be done with the V-shaped tubes in the old melter, as that melted on the V edges first, and the full amount of heat could not hit the comb as with the 1914 melter.

This melter is by far the best I have ever used, seen, or read about; in fact, it is the result of my long experience in the use of different melters, and in seeing other designs in use.

THE NEW SEPARATOR.

The new separator is also constructed differently from the one of 1911. Fig. 2 shows the separator completely assembled, and Fig. 3 the separate parts excepting one wax-pan.

The separator consists of three parts, all made of Teuton iron—the outside pan, the slumgum-basket, and the wax-pans. The engravings give a good idea of what these parts are and how they are constructed.

The outside pan is 27 x 17 inches. The compartment for the slumgum-basket is 5 inches wide, and as long as the pan is wide. The slumgum-basket is 4 x 16½ inches, having one-inch play to allow it to be slipped away from under the spout of the melter when necessary to empty it, without moving the melter or separator. The contents can be dumped in an old box; and later, after the season, put through a wax-press or dumped immediately into a solar extractor. The basket follows the shape of the outside pan. The whole separator is very easy to dump, and is self-cleaning.

If for any reason one is careless, or wishes to run lots of honey through the separator quickly, it will start little drizzling specks of dirt from the contents of the basket, which will go into the wax-pan. In this case it would be better to put a piece of cheese-cloth inside the basket to catch all such specks of dirt. If left alone, and run as intended, just as every thing comes from the knives, the wax cake will be a bright, clean, yellow wax. The operator can melt comb honey, chunks, or cakes

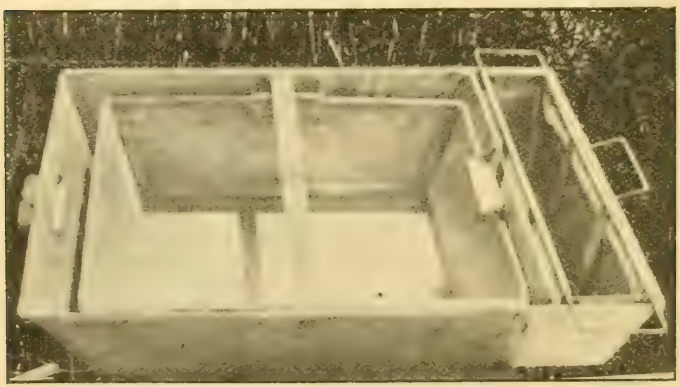


Fig. 2.—Severin's 1914 separator assembled.

of wax so completely and quickly he will wonder how it is done; and the separator will handle it as fast as it comes.

The wax-pan is 20 x 16 in., and 5 in. deep. There are two pans in this compartment. One rests down in the honey, and the other fits inside of it closely. Both slide under the spout. Consisting of two pans it has an advantage over the other form. By slipping both from under the spout, the cross-bar may be pulled out and the wax-pan inside lifted out. Then one need not get daubed up with honey. If for any reason one should fill the first pan, he can lift it out and shove the other one under the spout, put the cross-bar back, and keep on melting until that also is full. The outside wax-pan holds 36 pounds, and the other 35. I have never been able to fill either of these pans in a day's run, but have filled it from other wax. I have extracted from 13 to 15 cases of honey a day, getting from 18 to 20 pounds of wax.



Fig. 3.—The new separator, showing the parts.

This separator is probably too large for the average beeman, but can be made any size desired. The reason I made this size was because the wax cake fitted a gunny sack much nicer, and I did not have to stop my work when the separator was full, as was the case with the 1911 separator. The new one has a great deal more slope than the one of 1911, and cuts all the surplus honey out, as the wax-pan closely follows the slope of the outside pan. There is a screw-cap outlet near the bottom to draw off the honey each morning down to the ⅜-inch partition. Always, when through with a day's work, the slumgum-basket should be lifted out, a sack thrown over the separator to let all cool together. The next morning the large cake of wax is ready to take off. Where the slumgum-basket was will be a ¾-inch piece of solid wax, which must be removed to make room for the basket again.

A 1½-inch pipe carries the honey from the separator to my extractor-pipe. From there a 2½-inch pipe carries it into the tank.

Imperial, Cal.

REPORT ON APIARY INSPECTION AND DEMONSTRATION IN ONTARIO, 1914

BY MORLEY PETTIT
Provincial Apiarist

It has not been found necessary to make much change in the management of the inspection of apiaries from the methods reported at previous conventions. In accordance with a resolution passed at the last annual convention, more local inspectors were appointed than ever before; but with this exception the work has been carried on much as usual.

The inspectors' conference was held at the beekeeping short course in January at the Ontario Agricultural College. A letter, warning against danger of spreading disease by allowing bees to rob, was sent to the general list of beekeepers early in the spring, and the self-inspection report-forms went to the disease list of beekeepers in May. These were given a hearty response by the recipients.

Twenty-one apiary inspectors were employed. Nine of these were strictly local inspectors; that is, they are practical beekeepers appointed to inspect bees in their own and adjoining counties. Eight have taken some training at the Ontario Agricultural College, and have returned to their homes to keep bees. They also acted as local inspectors. The four remaining men were sent out directly from the Ontario Agricultural College, after having received a special course of training in apiary inspection and in conducting apiary demonstrations.

One thousand three hundred and sixteen

visits were made to apiaries by inspectors during the season of 1914; and while in the European-foul-brood districts half of the apiaries visited were found diseased, only 31 per cent of the apiaries visited in the American-foul-brood district were found to be in this condition. In other words, whereas the inspectors went only to apiaries where disease had been reported or was strongly suspected, seven out of ten such apiaries in the American-foul-brood district were found to be free of disease. This shows that the educational campaign which we have been conducting for several years is bearing good fruit.

While it is exceedingly regrettable, it is not surprising that European foul brood is still spreading rapidly. Some new counties have been taken into the diseased area this year. It is only a matter of time when the whole province will be covered. Nothing but careful requeening with vigorous stock and advanced methods of management will save any apiary in Ontario from ultimate destruction. By our publications, demonstrations, and inspectors, practically every beekeeper of Ontario has been repeatedly warned, yet comparatively few have taken heed or will heed until the enemy is upon them, and they have suffered heavy loss. In the infected area the business has been reduced to the very few who have taken advice and are building up their apiaries again to a paying basis. These few are proving the truth of what has been said, and their evidence is of great value in the educational campaign still being waged in advance of the disease.

No doubt one reason for the indifference to warnings in the European-foul-brood counties is the fact that previously no bee disease had been known there. It is only this year that the American and European foul-brood territory began to overlap in Victoria County. From now on we can expect an increasing number of cases of the two diseases in one and the same colony. This will, no doubt, make it necessary to treat all such colonies by requeening for European foul brood, and by shaking for the American variety of disease.

Fifty-five apiary demonstrations were held in all parts of Ontario, with a total attendance of 1861 persons. In 1912 the average attendance was 25; in 1913 it was 32, and this year 34, showing an increased interest from year to year.

This report would not be complete without mention being made of the public spiritedness and the hospitality of several who have given their assistance. Fifty-five beekeepers have at considerable inconvenience allowed their apiaries to be used for demonstrations. In many cases their wives and other ladies of the neighborhood have provided refreshments for the demonstrators and for the beekeepers in attendance. Hundreds of other beekeepers have given a hearty welcome and cordial hospitality to the inspectors on their rounds. All this is very much appreciated, both by the inspectors and by the department, and goes a long way toward smoothing the path of the public servant, which is not always lined with roses.

Guelph, Ontario.

POWER EXTRACTORS DRIVEN BY FRICTION INSTEAD OF BY BEVEL GEARING

BY H. H. ROOT

Ever since beekeepers began to use power honey-extractors there have been complaints regarding several features in connection with the construction of the driving mechanism, and a number of beekeepers have substituted other devices such as clutch pulleys, loose pulleys with a belt-shifter, etc., the idea being to secure a more flexible device for starting the extractor, and one that could be operated with less effort, even when the hands are slippery with honey. Again, a number have written regarding the desirability of some scheme which would allow the pump to run all of the time instead of only while the reel is turning, so that it may have a longer time to do its work and thus be allowed to run at a somewhat slower speed. In employing a friction drive instead of the usual bevel-gear drive we feel that we have secured several important results—first, *doing away with the idler or belt-tightener.* This device has frequently been a cause of complaint; for, besides being rather hard to operate, it is difficult to get the proper degree of tension on the belt to start the reel as gently and yet as quickly as required. For instance, one notch may leave the belt too loose, while the next makes it too tight. Furthermore, a belt will not last as long when its "back is broken" by being bent both ways in passing over an idler-pulley.

Second, *allowing the pump to run all the time.*

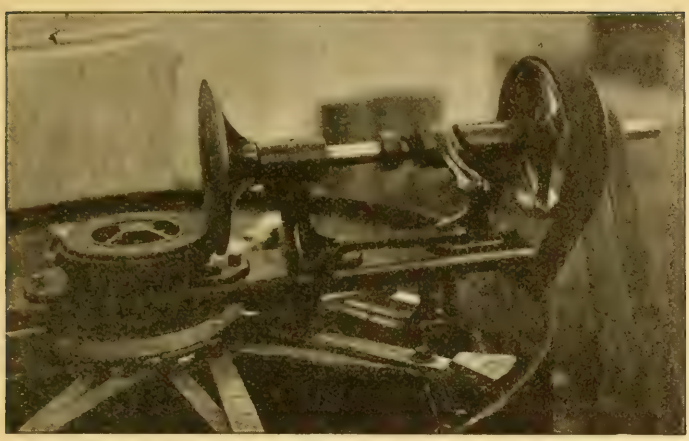


Fig. 1.—The cam-lever in a horizontal position, the extractor reel at rest.

With the friction drive the cross-shaft of the extractor runs all of the time as does also the pump. This means that the pump does not have to run quite as fast any of the time and consequently the load on the engine is reduced, and danger of slipping of the pump-belt is prevented.

Third, *allowing a variable ratio instead of a fixed ratio, as in case of beveled gears.* By this we mean that, in case the engine-pulley is not just the right size to turn the extractor at the proper speed, or if the speed of the engine cannot be controlled to the right point, the ratio between the driving-disc on the cross-shaft and the driven paper pulley on the vertical reel-shaft may be changed. Possibly there are some who do not understand the principle of what is known as the friction drive. It may be well to explain, therefore, that in this particular form of friction drive a metal disc with a perfectly smooth flat surface runs all the time, being located on the cross-shaft of the extractor. When it is desired to start the extractor-reel this revolving disc is brought into engagement with a paper-rimmed pulley on the reel shaft; and rolling against it, as it does, the reel speeds up, the rapidity with which it reaches its maximum speed depending entirely upon the amount of pressure brought to bear by the disc against the paper pulley. Now, if the ratio of the drive is not quite correct—for instance, if the reel turns too fast, so that there is danger of breaking combs—the paper pulley may be raised, say, ¼ inch on the reel-shaft, so that it is nearer the center of the driving-disc, and then the disc will not drive it quite so fast. On the other hand, if the reel does not turn fast enough the paper pulley may be lowered so that it runs nearer the outside of the disc, making a higher speed.

Fourth, *doing away with noise and danger of a breakdown.* Beveled gears, unless submerged in grease, are noisy, and wasteful of power. There is also the possibility of breaking a tooth, due to the power being applied too suddenly, causing an expensive delay.

To show that the friction drive is ample as a means for transmitting power, one has only to point to well-known makes of automobiles such as the Cartercar, Lambert, Metz, etc., in all of which the friction drive is successfully used. The illustration on page 22 shows the friction drive as used in the Cartercar. The success of this particular make of machine in climbing grades even as steep as 50 per cent is too well known to need further comment here. From over a year's experience with the friction drive as applied to honey-extractors, we believe that the paper rim of the driven

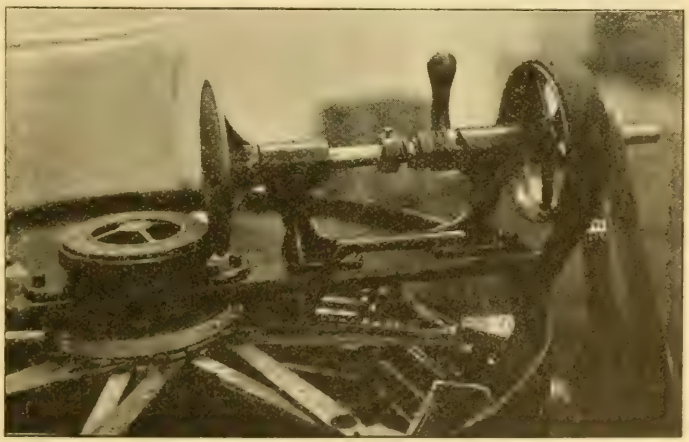


Fig. 2.—The cam lever in the vertical position. The disk is thus crowded over against the paper wheel on the vertical shaft so that the reel turns.

pulley will last longer than a set of beveled gears.

TO OPERATE THE EXTRACTOR.

Fig. 1 shows the driving mechanism with the cam-lever turned down in a horizontal position. Fig. 2 shows this lever pushed up to a vertical position, in which case the cross-shaft and disc are crowded to the left so that the disc is in contact with the paper pulley on the reel-shaft, thus causing the reel to turn. There is only one adjustment necessary, and that is the position of the collar on the horizontal cross-shaft of the extractor, which receives the thrust from the spring when the cam-lever is in a vertical position. Fig. 2 shows this collar and the set-screw that must be loosened when the position of the collar is changed. If this collar is too close to the cam-lever the tension on the spring when the lever is in the driving position will be too great, causing an unnecessary strain on the bearing. On the contrary, if the collar is too far away from the lever there will not be enough tension to drive the reel.

It will be noted that the shape of the cam-lever is such that the greatest tension on the spring (and consequently the greatest thrust) occurs when the cam-lever has been moved up about half way to the vertical position. A little more tension is needed at the start to get the reel speeded up; but when the proper speed has been reached, and the lever moved on over into the vertical position, the tension is released automatically by the shape of the cam to relieve unnecessary strain on the bearings. A very slight pressure on the part of the disc against the paper wheel is sufficient to keep the reel moving at high speed, when it is once under motion; therefore the adjustable collar should not be located any closer to the cam lever than is necessary to keep the reel turning at full speed when the lever is in a vertical position. When the adjustment is correct the lever will turn up or down easily, requiring very little effort.

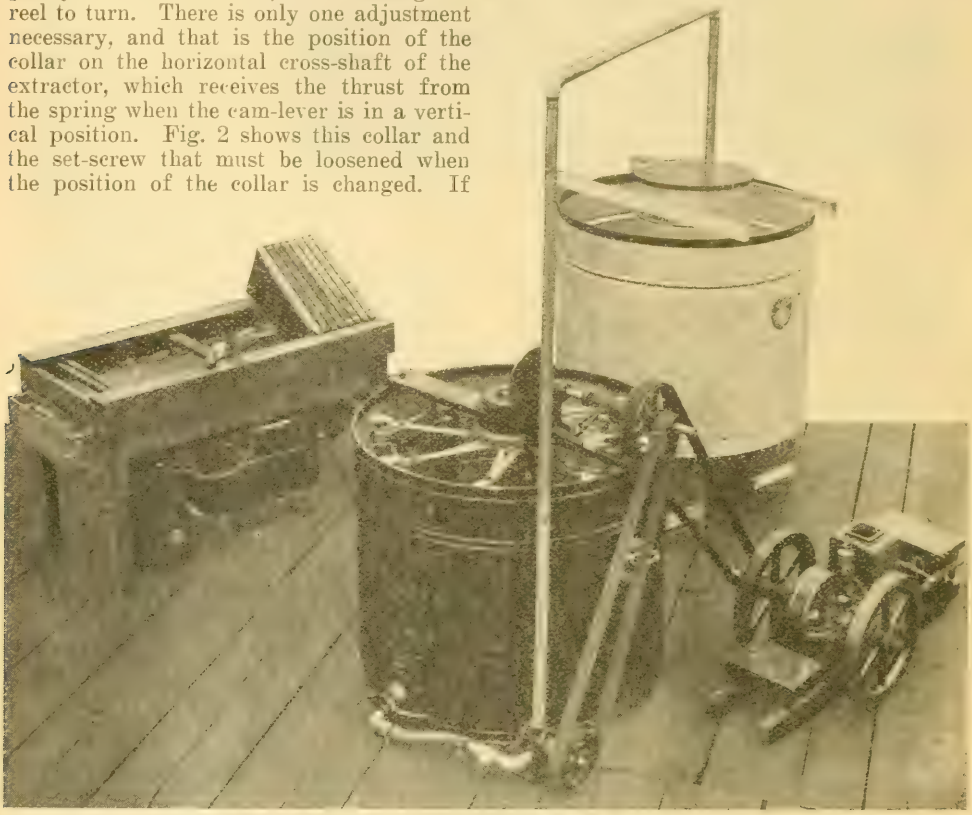


Fig. 3.—Ideal arrangement of extractor, pump, engine, tanks, etc.

LOCATING THE MACHINERY AND TANK.

Fig. 3 shows the arrangement of the extractor, pump, engine, tank, etc., that we recommend. The outside door to the extractor room should be on the side nearest the capping-melter or uncapping-tank, so that the full supers will not have to be carried about the room any more than is absolutely necessary. All new belts will stretch slightly at first, after they have been run a short time. It is well not to locate the engine, pump, etc., too permanently at

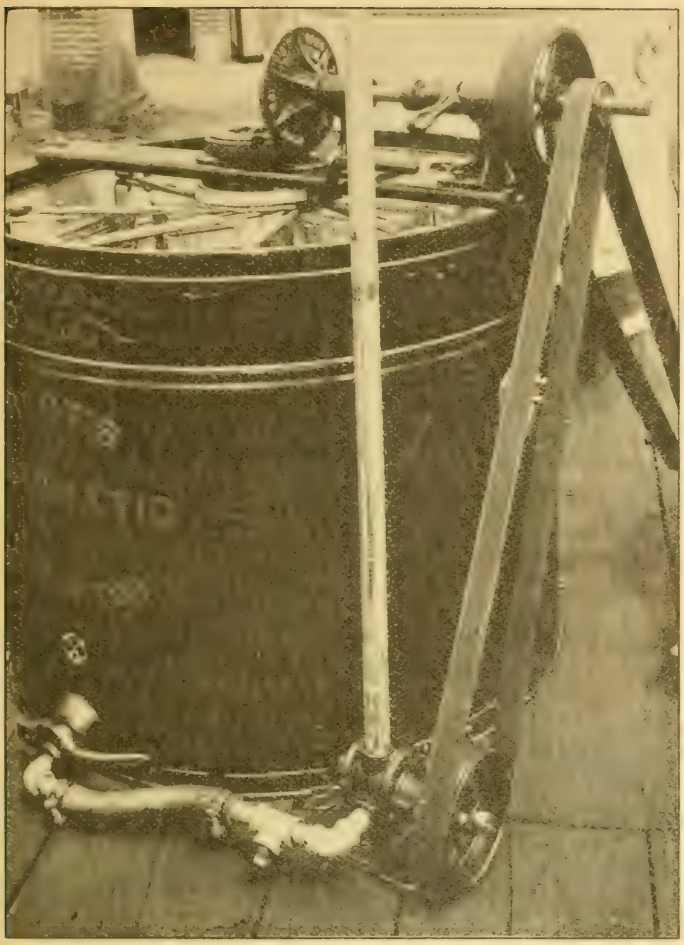


Fig. 4. —A closer view of the pump, showing the connections.

the start, for they will surely have to be moved slightly one way or the other to make up for the stretch of the belt. After the belts have once been "broken in," any further stretch is so slight as to be almost imperceptible.

The pump-base is secured to the floor by means of large screws or a small coach or lag screw. These should be started at the end of the slots furthest from the extractor, so that, as the belt stretches, the pump may be moved back away from the extractor slightly by loosening the screw. Fig. 4 shows a closer view of the pump and its connections to the extractor, through an opening in the gate. This connection does not interfere seriously with the opening of the gate if desired. In this position the discharge pipe that takes the honey from the pump to the tank is out of the way and does not interfere in any way with the operation of the extractor.

The engine does not require a stone foundation, an ordinary wooden floor being solid enough unless the timbers are in very bad condition. We usually secure the engine to the floor by boring a hole through each end of each skid and inserting long lag screws into the floor through these holes. A somewhat easier plan, and one that permits some change in location on the floor, is to select two pieces of 2 x 4 material, each a trifle longer than the width of the engine-bed. Cut a notch in each end so that the piece will fit down between the handles at the ends of the skids. Bore a hole in the center, and then by inserting a long lag screw into the floor the ends will be clamped down. Later on, if necessary, the two screws may be loosened

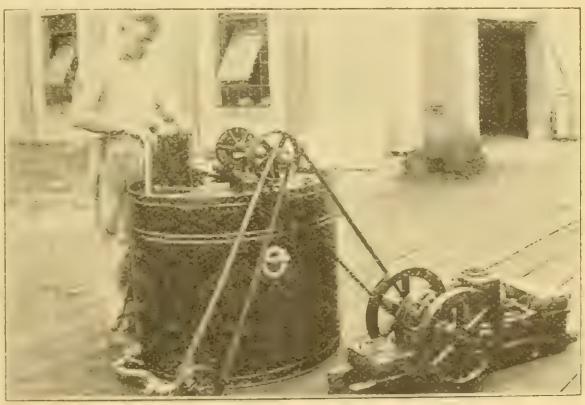
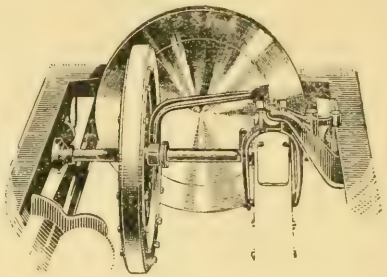


Fig. 5.—An extractor located on the floor is much more convenient when it comes to putting in or taking out combs.

slightly and the engine pushed back away from the extractor, to make up for the stretch of the belt.

Fig. 3 also shows a good arrangement for a strainer. This is a combination of strainer and settling-tank which works admirably. A small barrel with both heads knocked out is as good as any thing for the inner can. Heavy cheese-cloth is firmly tied over the lower end, and the barrel supported as in the illustration, so that the cheese-cloth is three or four inches from the bottom of the main tank. The honey is pumped into the inner tank (or barrel); and as soon as it reaches a level above the cheese-cloth the bits of cappings and all foreign matter will float to the surface away from the cloth so that the latter may accomplish its purpose of straining the very fine particles without becoming clogged. For best results the honey should be allowed to fill the large tank nearly full before any is drawn off, and it should be drawn off no faster than any is pumped in, in order that the level may be kept well away from the cheese-cloth.



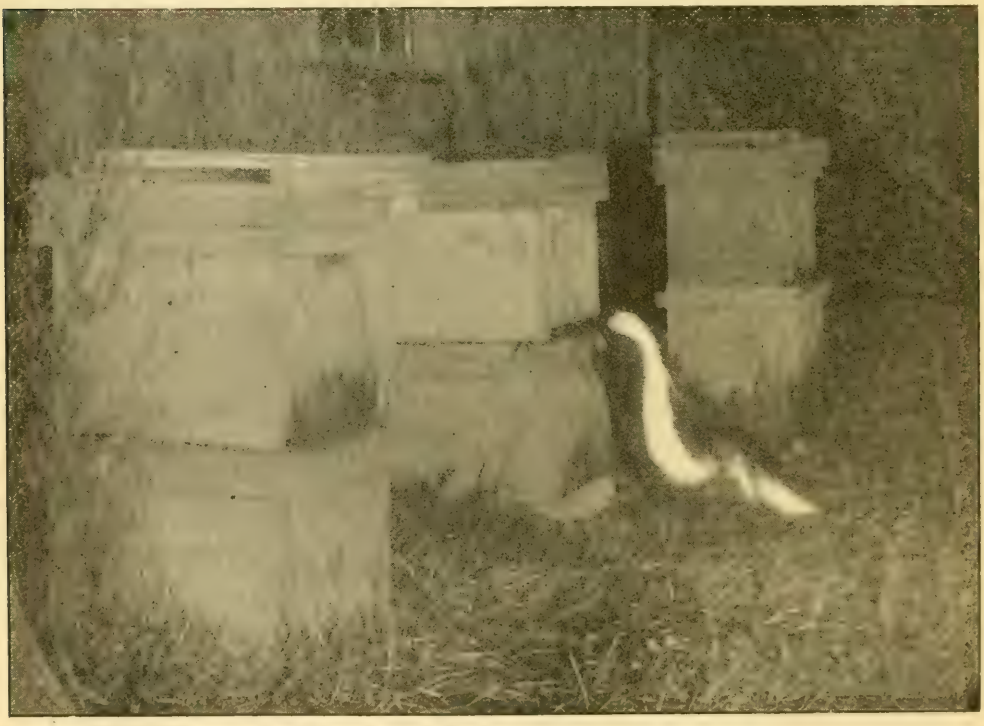
Friction drive of Cartercar

POLECATS IN THE BEEYARD

BY H. R. BOARDMAN

I have been aware for some time that skunks seemed to be attracted to my bee-yard. I have found them occasionally scratching at the entrance, but it did not dawn upon me that they were robbing the hives of the live bees until quite recently.

During the moonlight nights of October and November I caught them on their job.



Flashlight of polekitty robbing H. R. Boardman's hives.

By scratching the hives the bees would be disturbed and run out at the entrance to drive away the intruders. These expert night robbers, without gloves or veil to protect them, would gobble the bees up, apparently fearless of stings, "and working with a zeal worthy a nobler cause"

I think the loss of bees quite serious. I have 115 colonies in the yard, and most of them, I think, have been worked by the skunks. What the skunks are doing to my bees they are doing to the bumblebees.



Caught with the goods on. Another remarkable flashlight photograph.

Look carefully, Mr. Farmer, and you will find many of the holes in the meadow and pasture you thought were dug for grubs were dug for the nests of bumble-bees. And don't forget the nests of Bob White, because the echo of his sweet song is far more pleasant than the "aroma" of the skunk.

Collins, Ohio.

BEEKEEPING IN SOUTH AUSTRALIA

BY A. P. HABERECHT

In my locality the season ending last May was one of the best I ever experienced. My average for 66 colonies was 125 lbs. extracted honey, and all supers full of stores; about 2500 lbs. of surplus, which, if I could have extracted, would have brought the average up to 161 lbs. per colony; but on account of the coolness of the weather and the thickness of honey I was unable to do so. The honey-flow lasted up to the end of April.

My honey was so thick that I could do nothing with it below 90 degrees, and only at 100 would it extract freely. My reason for this was continual high winds during the main honey-flow, the bees working only mornings and evenings, and fanning all the rest of the time. My bees worked very evenly this season, 50 per cent best, 40 per cent well, and 10 per cent that brought about 60 lbs. of surplus—no difference as to color or breeding. The best Italians seem to fly earlier and faster, but do not seem to put more into the comb-bucket. The only conclusion I can come to is that they must consume more stores.

The red gum (*Euc. rostrata*) turned out a complete failure with me last season; but it looks very promising for next season. The yellow box (*Euc. melliodora*) bloomed from the beginning of September to the end of February, which happens only once in a lifetime. It usually blooms from the end of July to about the end of October; but this season it has no buds, so there will be no bloom on yellow box next season at all, perhaps only an odd tree. The gray box (*Euc. hemiphlora*) bloomed very patchy, but a good sample (our fall honey).

I sold 75 per cent of my honey to the consumer at 8 cents per lb., and 25 per cent to dealers at 7 cents, and my beeswax was sold at the market at 28½ cents, the highest price I ever had for beeswax.

I would strongly advise all apiarists to do their best to sell as much as possible to the consumer, get their honey up in suitable lots, and make a house-to-house canvass; but the honey must be put up attractively. There is a great future for the apiarist; but he must keep on teaching the people to eat honey. You will find that, the more people eat honey, the better they will like it, and the more they will eat. I cannot say that I know of one person who said, "I used to eat honey, but now I do not care for it."

My experience is, if a family takes 30 lbs. of honey this season I am sure they will

take 60 next season. The trouble is to induce them to buy the first lot, however small it may be; but if the advertising and the canvassing are left to the dealer we are lost.

My idea is to sell all the best honey first, tell the customer that all the best honey is sold out, get him to taste the other, and he will take it and be satisfied, even if it is inferior. But he will get in earlier next season and buy more than ever. I sold all my best first, and the fall honey went just as quickly afterward.

Our Royal Agriculture Show took place at Sydney at Easter time. The weather was perfect, the attendance a record (95,000 people on Good Friday, the main day); but the bees and honey exhibits were very few and poor. I went 360 miles to see it, and I was very much disappointed. I exhibited only in the district exhibit. There were practically only two exhibitors and one experimental farm instead of about twenty or thirty contributors; but our brother apiarists do not seem to care or bother so long as they get their honey away at any price. Our district honey exhibit got 18 points out of a possible 20, so we did fairly well.

Perhaps it would be interesting to some of your readers to know that my grandfather brought one colony of bees from Germany with him in 1848. Bees were then unknown, so far as I know, in South Australia. They were twenty weeks on the water, and came out in good condition. The first honey was sold at 25 cents a pound, and the first swarm sold brought 5 pounds. Those bees were pure blacks.

Henty, N. S. W., Australia.

THE HODGSON BEE-ESCAPE BOARDS

Auto Truck in the Apiary, and New Twelve-frame Friction-drive Extractor

BY R. F. HOLTERMANN

There has already been some notice of the Hodgson bee-escape board, which has a wooden frame with the main part of it wire cloth. This is the invention of Mr. Arthur F. Hodgson, Jarvis, Ontario.

The ordinary bee-escape board has been objectionable to me because, owing to lack of ventilation when put under the supers, only one super can be put above it at a time. When we go into an apiary we want to make a complete job of extracting in one day. Next, the bees being off the combs for some time before extracting, and the heat of the bees being shut off by the solid bee-escape board, the honey cools, and therefore it is more difficult to extract. Of course this latter difficulty has been overcome in part by the use of power extracting-outfits.

Last season I saw the way in which these escape-boards worked at the apiary of my son Ivar, and it was practically demonstrated to me that they are the proper thing for a well-equipped apiary. I have now 250 of these escape-boards, made for me by Mr. Hodgson. This is enough for the apiary we may be extracting in, and for the apiary in which we may want to extract the following day. I use a double-outlet Porter bee-escape in each board; and because of these two outlets instead of one I think the bees leave the supers in about half the time.

RESULTS.

The boards have proved themselves a very great success. We have put them on at almost every hour of the day. Our practice for quick work is for one to lift the super, another to smoke, and a third to slip the escape-board on the hive. This is particularly desirable when there are two supers on a hive; but one can do the work by removing the super and setting it down until the escape-board has been placed on the hive. This year, however, we did not have many second supers, and in no case was the second super full. The escape-boards are best put on quickly after the super is raised and the super returned as quickly. This prevents, to a very great extent, the bees from getting between the surfaces of contact, and thus, of course, killing bees or taking a long time to brush them away.

As to the time it takes for the bees to leave the supers we found it quite feasible to remove the supers five or six hours after the escape-boards were put under them, thus enabling us to put some of the escape-boards on in the morning, and extracting from them the same day.

I found that the bees begin to roar very soon after they are separated from the brood and queen below (their action is the same as if they had been smoked too much). Mr. James Armstrong, Cheapside, Ontario, a well-known beekeeper, told me that he and his son go to the hives soon after putting on escape-boards; and unless the bees are roaring, which can be heard from the outside, they know there is something wrong, and they investigate to find out what it is. Per-



Holtermann's power truck with a load of empty 12-frame supers.

haps some beekeepers do not know that, if the queen and brood are there, the bees will remain contentedly in the super.

We found a few young bees in some supers; and occasionally, after being on only five hours, some more bees; but there were not enough left to make the removal of the supers of honey inadvisable if they were needed that soon.

I remember coming to a super with a lot of bees on the combs, and saying to one of the students, "We will investigate the cause. Perhaps the bee-escape is clogged."

We found the escape raised at one side so the bees could pass back into the super, so that there was really no bee-escape board on that hive.

The honey extracts readily with the twelve frame friction-drive extractor. We have now used these boards in five apiaries, and there will be no more shaking and brushing of bees from the combs of honey in the supers.

In the years gone by I myself have nearly always had the work of removing the honey from the hives and freeing them from the bees by sharp shakes; and I have found this no light work when followed up day after day about as fast as a rather active man can move. It jars continually the whole system.

Another advantage in the bee-escape board is that it prevents the demoralization of the apiary at a time when it tends to robbing and the making of cross bees. However, let me sound a note of warning. There must be no chance for robber bees to get into the super from which the bees have been cleared.

THE AUTO TRUCK FOR TRANSPORTATION.

Accompanying this article is an illustration of the auto truck I have purchased to use in connection with apiarian work. As seen in the illustration it is loaded with forty supers (twelve-frame), containing combs which have been extracted, and which are about to be returned to the apiary from which they have been taken.

I find this truck a very great advantage. It has a capacity of 1500 lbs. weight. There are times when a truck of greater capacity would be very convenient; but the desirability of this increased capacity is confined to so short a time that it would, in my estimation, be more than counterbalanced by



R. F. Holtermann with his son Glenn and five students, who were with him during the season of 1914

the extra expense of running the heavy truck.

This truck can be run into a beeyard, and loaded or unloaded without any fear about stinging horses; and there are not many days in summer when rain prevents its use.

We used the Hodgson wire-cloth bee-escape boards this season, as before stated, thus doing away with all brushing and shaking of bees from the combs of honey, and extracted the honey from seven apiaries at two points. If the honey crop had been any thing like a normal one, of, say, 50 lbs. to the colony, it would likely have paid us better to move the honey-extractor to the honey instead of moving the honey to the extractor.

Another use for the truck is to transport the workers from home to outyards. From the accompanying illustration it will be seen we had quite a number of learners and workers—one each from New York, Pennsylvania, Jamaica, Cuba, Wales, and three from Ontario, Canada. The one from Wales and a lady from Ontario do not appear in the engraving.

THE FRICTION-DRIVE EXTRACTOR.

While on the subject let me say we substituted for the bevel gears on the twelve-frame extractor a friction drive, and also ordered another with this equipment. We found a wonderful improvement in the running of the extractor. A great advantage is that the honey-pump runs all the time, keeping the bottom of the extractor always in view. The extractor, too, can be operated with less trouble. Every power extractor should be operated by means of friction.

Brantford, Canada.

PURGATIVE DRUGS FOR BEE PARALYSIS

BY M. Y. CALCUTT

I have noticed in GLEANINGS for several years past more or less discussion regarding that peculiar disease known as bee paralysis. It is to me the most peculiar of all bee diseases I am acquainted with. I have had my experience with American foul brood, but am no longer alarmed over its visit to my apiary as I have learned how to handle it successfully. Bee paralysis I have also been visited with, and have successfully coped with it, so I do not dread its call, although I am not hankering after future visits. But I am not sorry for the visit I have already had, because I am somewhat like that grand old beekeeper, Dr. C. C. Miller. I have had more than my share of enjoyment attending to the bees, overcoming their affliction, and keeping them out of their difficulty; so, as A. I. Root says, it is a great satisfaction to feel that you are able to conquer the difficulties that are presented. It has always been my hobby to tackle something that people say cannot be done. Our pleasure lies in demonstrating that it can be done if we only have the patience to go ahead and do it.

Now, Mr. Editor, let us take a good look at this strange disease and see what is the matter. Some say it is due to the honey they gather, and some say it occurs only in hot weather. Others tell us it is due to the queen, and that requeening is what we must do to get rid of it. Now, I have found that they are all wrong. It is not due to the honey they gather at all, as I have had bees afflicted when they did not gather any honey, nor had they anything but white-sugar syrup. Then, again, I have cured them without any change in the queen. Now, N. L. Stapleton, of Colquitt, Ga., page 723, Oct. 15, 1913, will say, "Yes, but you had a suspension of brood-rearing." No, not at all. The queen kept right on laying, and the cure was effected just the same.

What is the cause of it? The bees become pollen-clogged; and unless they are relieved they will die. How can they be relieved? If they are not storing honey in the supers, just give them a cascaret dissolved in a little water and mix the same in a jelly-glass of sugar syrup, 1 to 1. It is well to repeat this for three or four days according to the size of the colony, then the trick is done.

Now let me add that I fully agree with Mr. Stapleton in all he says, with the exceptions as here stated. A discontinuance of brood-rearing will also effect the cure. If they are storing honey in the super this is the proper method to cure the disease.

Some writer has said we cannot cure it and get a surplus the same year. Now, this is wrong again, for I am doing it right now. To explain, last spring I had a colony badly affected. They were pulling them out by the hundreds, and they were hopping in all directions. As they crawled around they resembled laying queens. One would think they would burst, so distended were their abdomens. This colony was on a Hand switch bottom-board, so I put the queen into the empty hive with a frame of brood,

and threw the lever, switching all field bees to their new hive, giving them the cascaret as mentioned. The other half raised a queen of their own. Here Mr. Stapleton is corroborated in his experience—brood suspension. The other half, with queen and field bees only, cured by the cascarets. When these two halves had built up, which they did by feeding syrup, I united them again and put on supers, two queens working here; and now they are hard at it, storing in the supers. So we have nothing to dread here. Just pass this along to our bee-friends, and they can try it out for themselves. It is worth the trying.

Seattle, Wash.

THE ALEXANDER METHOD OF INCREASE

BY J. G. BROWN

[The writer of the following article was a beekeeper in Pennsylvania; and after that he removed to Colorado, where he spent eight years in the business. He is now with the A. I. Root Co. as assistant apiarist in the A. I. Root Co.'s apiaries.—ED.]

I read with a great deal of interest Dr. Miller's reply to A. Swahn, Dec. 15, page 979. I wondered at the time if the doctor had been educated for a lawyer, or how he managed to get so much sarcasm into two inoffensive-looking little questions as the following: "What successful man doubles his white-clover crop by dividing his colonies before the white-clover harvest?" "What successful man (or unsuccessful) increases his white-clover crop *each* year by dividing his colonies before the white-clover harvest?"

In reply to the above I'd like to ask Dr. Miller if he ever tried the Alexander method of increase, using it just as Mr. Alexander did, and leaving out nothing "because he knew it wouldn't work."

Mr. Alexander does not say that he gets "twice as much" honey when he divides as when he doesn't, but "nearly twice as much." Dr. Miller makes no room whatever for poetic license. Mr. Alexander further says that he has two good strong colonies in the place of one to commence work on the clover harvest. But he does not say they are of equal strength, nor does he say they are "as strong as" the one not divided. The fact that he says they gather "nearly twice as much" implies that he meant they were not quite equal to one undivided at the *beginning* of the season. Mr. Alexander doesn't even say he gets *any* more white-clover honey, but that he has two good strong colonies ready to go to work in place of one. Mr. Alexander gives two illustrations, and in each case he recites what was accomplished at the *end* of the season.

As a further proof that Mr. Alexander did not mean that the white-clover crop would be doubled, he speaks of the new colony on the old stand being "in fine shape for a super of sections," but he does not say the other colony is in shape for a super of sections.

Mr. Alexander began by using what he called fairly strong colonies about April 15, with a queen not over ten months old, and these he fed every day they couldn't get nectar up to and after dividing them. One queen was laying her best up to June 1, and after that he had two queens laying. The first colony contained all the field bees up to May 26, and had a hive nearly full of brood. The second colony had the young and hatching bees, and a young laying queen after about June 1. The flow began about June 15, so the second colony had bees old enough to go to work on clover.

From this time on until the close of buckwheat Mr. Alexander had two colonies gathering honey in place of one. It must be remembered that Mr. Alexander ran for extracted honey, and I have no doubt he was well provided with good brood-combs so that each colony had a hive full of combs at the outset.

Dr. Miller in calling for examples, like the angel at Sodom and Gomorrah, is willing to be "Jewed down" a little. He asked for two living examples of successful men who doubled their white-clover honey by dividing their bees, or two successful (or unsuccessful) men who increased their white-clover crop by dividing their bees before the harvest. Some of us might get into the discussion by way of the parenthesis. If Dr. Miller will concede that white clover isn't the only flow there is, perhaps some of the beekeepers of the West who really keep bees, and, in return, are kept by them, may be able to break into the discussion.

The Alexander method of increase, on the whole, is all right and sound doctrine. That, like all other methods, will have to be adjusted to fit the locality where it is to be used. This is not merely belief, but to me personal knowledge. I used it in Colorado, but fed outside instead of using individual feeders. The result was, colonies were boiling over with bees much earlier than the apiaries where not so stimulated. Both

parts of the colonies divided on this method were, in a few cases, ready for the first alfalfa flow, beginning about June 18, while others did not go into the supers (comb honey) till later.

But I should like to give Dr. Miller the names of some of the beemen of Colorado who use this method to a greater or less extent in making increase, unless he insists on the white-clover test, and that would, of course, shut the Western beekeepers out.

Mr. J. C. Mathews, of Montrose, Colo., who owns and operates 1000 colonies, who is successful in the commercial end of beekeeping as well as the theoretical, uses the Alexander plan very largely. Mr. Mathews says he regards it as the best-known plan of increase.

Mr. E. D. Nichols, a beeman of many years' experience, of Montrose, Colo., uses this method of increase, and says the two resultant colonies will produce much more honey than the one undivided. Mr. Nichols keeps a close record, and can tell each colony that gave him surplus and how much. Mr. Nichols uses a comb-honey super on the colony on the old stand, and an extracting-body on the other for the first super.

Mr. J. J. Corbut has had a large experience in building up colonies, and he uses the Alexander plan largely. Mr. Corbut is a very observing man, and pays plenty of attention to details. When he adopts a method you may be sure there is a good reason for it.

William Corbut and Marion W. Harvey use the Alexander plan with the Doolittle plan and the Dr. Miller plan, and endorse all of them. This, of course, depends on what they want and the method they use.

Mr. Roscoe Miller, president of the Montrose County Beekeepers' Association, and a man owning nearly 1000 colonies, uses this method of increase. Mr. Miller does not believe in sacrificing honey for increase, and yet he believes in the Alexander plan. Don't get the idea that those beekeepers never use any other method. They are keen, wide-awake, practical men, always ready to take up any thing good or to try it once; and these men consider the Alexander plan, adjusted slightly to suit their conditions, a good practical method, and one with which any one who is willing to take pains can be successful.

Mr. Geo. H. Rea, head of the apiary department for the A. I. Root Co., used the method in Pennsylvania, and knows it will work when followed in detail.

If Mr. Swahn will provide himself with a copy of "Alexander's Writings on Practical Bee Culture," and for good measure throw in a copy of "Management of Outapiaries," by G. M. Doolittle, and read them during the present winter, he will be able to increase materially his honey crop any season by following these two able writers. Even if he have but one colony I think he will be able, with his increased knowledge, to pay for these two publications in increased amount of honey the first year.

I think, Mr. Editor, you should not omit any detail of this method from your next edition. Remember your book and your magazine are read by professionals as well as novices, and the former class, at least, prefer to do their own eliminating when necessary. Don't conclude that this method is wrong without a proper hearing. Dr. Miller has given his opinion, but does not say it is based on any fact or experiment which has proven the contrary "in his locality."

Your own apiarist is of the opinion, backed by numerous tests that he can demonstrate to your entire satisfaction, that he can increase your *white-clover* crop by following the Alexander plan in detail and omitting nothing.

GUARDING AGAINST BEESTINGS

BY RUTH C. GIFFORD

It is a peculiar sensation to be so badly stung by bees that every one, yourself included, thinks you are going to die. Few beekeepers in this community who have that sort of experience ever handle bees again. I happened to be one of the people who kept on; but the time I had could not be described by the word "pleasant." Of course the only thing for me to do was to use a suit that was practically sting-proof. As I could not find either a description or an advertisement of that sort of suit I had to experiment. Every time the experiment did not work I got stung literally as well as figuratively. The amount of ingenuity shown by those bees in finding places through which to sting was simply wonderful. However, I think my troubles are over so far as a bee-suit is concerned, because I have not had to modify this one during the past two seasons.

I am now going to describe my suit. If

any woman makes one like it, and follows these directions carefully, I don't see how she could be bothered by stings. The suit consists of gloves, bloomers, and a blouse and wire bonnet, which are sewed securely together. The material for bloomers and blouse is unbleached muslin. The bloomers are made very long. The top is held securely around the waist by a long drawing-string. They are also fastened securely around the ankles, over high shoes, with two more drawing-strings. If they are not made long they will pull up, and the bees will sting around the shoetops.

The gloves are men's heavy goat-skin work-gloves. They have a disagreeable odor; but a thorough smoking with a bee-smoker will help that. The bees don't bother by stinging through these, even when they are wet. I always sew a three or four inch strip of muslin to the tops of the gloves; then they won't pull out from under the sleeves of the blouse.

The blouse has the sleeves made long with elastic in them around the wrists. The body part is very wide. To be on the safe side it should be 2½ times as wide as the coat. Another drawing-string fastens it around the waist. The neck is cut out until it fits around the bee-bonnet comfortably.

The bonnet is the most important part of the costume. Take a piece of ordinary wire mosquito-netting, 10 x 34; wrap one end over the other and sew securely. Over one end of this wire cylinder sew a round piece of muslin and bind the edges of the other end with two thicknesses of muslin. To this sew a five-inch muslin curtain. Then, if it gives you the headache to look through the netting, cut out a rectangular piece of wire. Don't make this any larger than necessary. Bind the edges of the opening with a narrow strip of black material. Measure off a piece of fine wire, such as you use in wiring brood-frames, long enough to go twice across the long way of the rectangle, and another piece long enough to go across the narrow way five times. Put these in so the spaces between them are about equal, and twist each wire around the other. That prevents them from pulling in any direction. To do this, fasten the ends of the wire which run the long way last. These two ends will, of course, come on the same side. If you want to take the shine off the wire, soak it in lemon-juice for a few minutes or in hydrochloric acid about one minute before you use it. After the wire is in, sew a piece of silk tulle over the space, and leave it loose. Then put on the bonnet and blouse, and have some one sew them together.

This suit sounds complex; but if you happen to be one whom the bees take a special delight in stinging you will find it very convenient. The bloomers and blouse can be made "any old way," just so they're big, and sewed tightly. This suit will last several years, and only a few minutes are required to rip out the bonnet when the suit needs washing.

Northeast, Md.

BEESWAX IN EGYPTIAN TOMBS

BY GEORGE BUTLER

During the visit to Queensland of the members of the British Association for the Advancement of Science some very interesting particulars were elicited from Professor G. Elliott Smith with reference to his researches in Egyptian tombs. He is a scientist of considerable note, and any information coming from such a source would not be questioned by any living man. He is a great authority on the mummies of Egypt, and at one time held a prominent position in that country under the government. The subjoined information was the outcome of a letter received by the writer from a fellow-beekeeper in Queensland, who stated that the professor, in conversation with a friend of his, had mentioned that, during excavations in Egypt, he had discovered a jar of honey, the odor from which was sufficiently strong to attract the attention of bees which were flying near. To obtain a verification of these facts the writer communicated with Professor Smith, who supplied some interesting facts on the subject.

Mr. Smith said that, several years ago, in the course of excavations in the valley of the tombs of the kings at Thebes, the tomb of the parents of Queen Tiy, wife of the Pharaoh Amenhotep III., was discovered, and among the rich furniture found in the tomb was a large alabaster jar containing a thick honey-like liquid which Mr. Theodore Davis, who supplied the funds for the excavation, mistook for honey. The professor ridiculed the supposition that honey would remain in a liquid state for thirty centuries in a dry climate like that of Egypt. When investigating the contents of the tomb he took a sample of the honey-like substance, which smelled like castor-oil, and asked the Government Analyst in Egypt

(Mr. Lucas) to examine it. The surmise he had entertained was found to be correct. It was castor oil. This statement was somewhat disappointing.

It appears the Egyptian women, both in ancient times and at the present day, use castor oil for dressing their hair and anointing their skin to keep it soft. The professor, however, found considerable quantities of beeswax in ancient Egyptian tombs. It was used to make shields to protect the eyes, ears, nose, and mouth of mummies, and to preserve their features from injury. The ancient classical writers say honey was also used for mummifying.

Red Hill, Brisbane, Queensland.

MINNESOTA CONVENTION REPORT

BY HARRY G. BRANT

The Minnesota Beekeepers' Association held its annual meeting in the Engineering Building of the State Farm School, Dec. 2 and 3, in connection with the Minnesota State Horticultural Association. About one hundred beekeepers were present, quite a few ladies among them. The excellent program was followed out, and a profitable and enjoyable time was had by all. Here is the program:

WEDNESDAY FORENOON.

9:00. Social hour.
10:00. Meeting called to order. Reading minutes of last meeting. Report of Secretary and Treasurer. Correcting wording of Constitution.
11:00. Bee-inspector's Report, J. Alf. Holmberg.
Address, "Bee Disease," C. D. Siehl.
President's address.

WEDNESDAY AFTERNOON.

2:00. "Progress in the beekeeping industry in Minnesota the past year," Francis Jager, Prof. of Apiculture, Agricultural College. A. F. Woods, Dean of Agricultural Department, University of Minnesota.
The Law of Mendel applied to the breeding of bees, C. E. Bartholomew, Prof. Apiculture, Iowa College.
3:30. Symposium on comb-honey production: "Fastening foundation in sections" (a demonstration). L. M. Bussey.
"Fastening Foundation in Split Sections" (a demonstration), L. D. Leonard.
"Spring management for comb honey," L. F. Sampson.
"Putting sections on hives," Geo. W. Shafer, Menomie, Wis.
"How to get well-filled sections," Jos. Moser Calmar, Iowa.
"Removing sections from the hive," L. A. Stickney, Minnesota City, Minn.
"What to do with unfinished sections," C. S. Russel, Pine City, Minn.
"Packing and crating honey," Peter Howe, Kellogg, Minn.

THURSDAY FORENOON.

9:30. "Marketing honey," P. A. White, Barron. Wis.
Mrs. M. McCabe, Minneapolis; F. E. Lang, La Crosse, Wis.; Mrs. F. J. Butterfield, Long Lake, Minn.; O. J. Goodmansen, Little Falls, Minn.; Mr. Fred Oesch, Winona; L. M. Bussey, Minneapolis.
"Bees and flowers," P. R. Little, St. Louis Park.
11:00. Beginners' hour and question-box.
Mrs. J. A. DeLameter, Mrs. Mattie Watts, Mr. F. E. Hälden. Mr. H. G. Brant.

THURSDAY AFTERNOON.

2:00. Symposium on extracted honey.
"Preparing bees in spring," C. D. Blaker.
What to do at commencement of honey-flow," Frank Schillock.
"How to prevent swarming," C. F. Greening.
"Methods of uncapping and extracting," P. C. Van Someron.
"Uncapping-knives," H. V. Poore.
"Why flowers do not always produce nectar," E. L. Hofmann.
"Management of bees after the honey-flow," F. W. Ray, Prof. Francis Jager.

Among those present were quite a few students who are taking the course in apiculture. The following officers were elected for 1915:

Rev. C. D. Blaker, Minneapolis, president; first vice-president, Rev. J. Kimball, Duluth; second vice-president, Mrs. J. A. De Lameter, Hopkins; secretary and treasurer, F. W. Ray, Minneapolis; Executive committee, L. C. Pilcher, St. Paul; L. F. Sampson, Excelsior, and Mrs. M. McCabe, Minneapolis.

PUTTING BEES IN SELWYN'S CELLAR

BY G. F. K.

A description of Mr. Selwyn's bee-cellar at Kirk's Ferry, Quebec, appeared in the Sept. 1st issue, p. 676. The bees were carried into this cellar Nov. 15. The morning was clear, the air crisp, the temperature a few degrees below freezing.

The apiary is situated on the side of a hill, and the hives are scattered in all directions, the unevenness of the ground making a definite arrangement impossible. The hives are of the eight-frame size, some fitted with the excelsior cover and some with a packed galvanized-iron cover. Between the top-bars and the cover are two thicknesses of cloth—the lower one of 10-oz. duck, and the upper one of burlap cut from an old sack. In some cases, where an excelsior cover was used, the moisture from the bee cluster had condensed and the cloth was frozen stiff.

The entrances of the hives—full width but only ⅜ inch deep—were blocked with tissue

paper stuffed in. This proved an excellent way of closing the entrances as long as the paper kept dry; but during the morning a blizzard caused the snow to dampen the paper, and in some few cases the bees found their way out.

The hives were arranged in the cellar on long scantlings forming racks, three tiers to the row. The covers were removed as the bees were carried into the cellar, leaving only the thickness of the duck and burlap over the bees.

When all the colonies were in, the doors were closed and all means of light excluded. By the light from a candle the entrance papers were quickly removed and then the bees were left to care for themselves till Christmas. At that time the brood-chambers were raised in front by a block of wood, leaving an entrance about 7/8 inch deep.

The temperature of the cellar seldom varies more than two degrees either way, the desired temperature being 38°. The 18-inch cement walls and the sub-earth intake pipe keep a uniform temperature until late in spring.

DEVICE FOR CUTTING OUT NATURAL CELLS FOR QUEEN-REARING

BY J. H. TODD

The illustration shows you a queen-cell cutter for queen-rearing which I have designed. The method of getting cells is as follows: From the brood-nest of your selected queen take a comb containing newly hatched larvæ in the center, and with a thin sharp knife cut out a piece of this comb containing a sufficient number of larvæ newly hatched. Return the comb, and the bees will quickly repair the damage. Now take this piece of comb indoors, as if proceeding to graft in the usual way, and, with an uncapping-knife, shave down to the midrib the cells on the side of the comb opposite to those selected. Have a little molten wax at hand, and lay your comb midrib down on a piece of flat smooth board; then, grasping the tin flange of the cell cup in your right hand and the wood flange in your left, pull them apart. Place the cutting edge of the tin tube exactly over a cell containing a larva of the correct age, and carefully press it down *without* twisting, keeping the cell in the center of the tube till the midrib is cut through; then lift up the tube containing the cell; dip the end of the wooden plug in the molten wax and quickly press it home down the sharpened end of the tin tube. The molten wax will stick to the cell base and fix it, and will also provide a thick base for the cell. The pushing home of the plug will make the mouth of the cell project the correct distance beyond the tin flange, which in its turn will form a base for the bees to attach the queen-cell to.

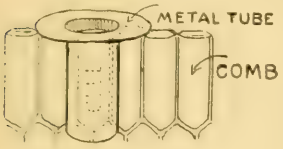


Fig.1.

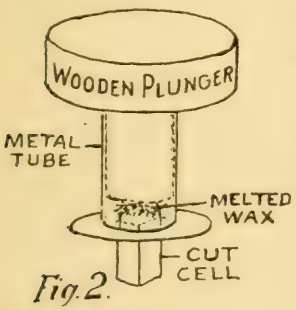


Fig.2.

The cup is now placed in a holding bar in a manner similar to a Swarthmore cup, the hole being of such a diameter that the tin flange will just pass through it, and the bar of such thickness that, when the cup is in position, the tin flange is flush with the under side of the bar.

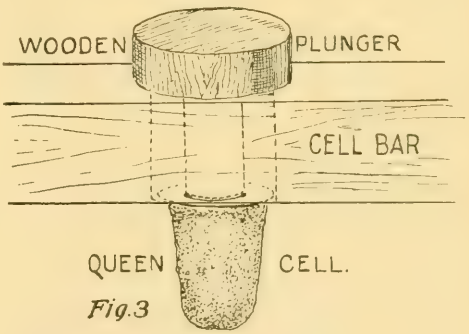


Fig.3

I think the advantages of this cup are obvious. It is much more simply and rapidly prepared than by either the grafting method or the Swarthmore method, the queen laying directly in the cups; and, above all, in comparison to the usual method of grafting, the larvæ are never man handled, and these delicate little insects go to the cell-building bees without removal from their cells, and in their natural state, suspended in their chyle food just as supplied to them by the workers.

Christ Church, N. Z.

PROFITS IN TAKING BEES FROM TREES

BY ELIAS FOX

I have been reading your comments on taking bees from trees. Now, I am in no position to tell upon what your ideas are based; but they are surely not based on facts—at least as applied to my experience, which was set forth in GLEANINGS some years ago, and again in my comments upon the writings of Mr. Chadwick, of California.

As to whether or not it was profitable to save bees from trees when cut, I thought I had proven conclusively that it was; but, judging from your conclusions, Mr. Chadwick's ideas, based upon guesswork, were accepted in preference to mine, based upon a personal and practical experience; but, no matter. I know I am right, and presume I have had as much practical experience as any man in the United States, and that is taking in a lot of territory. I realize it, and I am willing to take back numbers of GLEANINGS on your file and compare notes with anybody along this line.

All of my transferring from trees to hives has been done in the fall, and most of them late at that, and as late as November 27. I have yet my first colony to lose in wintering, so taken. Many of them have given me 100 lbs. of choice extracted honey the following season, and had plenty left for wintering. Only a few years ago I cut fourteen trees in the fall, and out of the trees cut I saved ten good colonies. Sometimes a tree will break in falling where no small trees are handy to let them fall upon, and in such cases a queen may be lost or a portion of the bees mashed. At such times I doubled; but you can see that the per cent of such was small when I had ten good swarms out of the fourteen; and the beauty of it was, I had ten good colonies the next spring; and when fall came I had twenty good stocks and 1000 lbs. of fine honey.

Now, who, in the face of this, can say it is not wisdom to transfer bees from trees cut in the fall? I have never done this, simply because I have never had the opportunity; but I will bet some money that I can transfer a swarm in this manner in December or January, and save them. When you look at it from a reasonable standpoint, why not? If trees are cut after the brood is all hatched you have exactly the same conditions that you have in the hive—viz., a colony of young bees, and, as a rule, a young queen; and if properly done they stand just as good a chance to survive the winter and build up early in the season as if they were hatched in the hive.

So far as adjusting themselves to new surroundings, it has no ill effect whatever; and I wish to relate my first attempt in this direction.

An old experienced bee-hunter found a tree that he knew was useless, sold it to a man running a hardware store in the village of Hillsboro, and the tree was in sight of the village. The purchaser asked me to help him cut it, saying he would divide with me. I told him I did not care for a division, but he was welcome to the honey, and I would take the bees and empty combs. This was highly satisfactory to him; and when we cut it and opened it up there was a little bunch of bees and a nice young queen. I actually believe a quart cup would have held every bee (though we might not have been able to get the queen in). They had two pieces of comb, a little larger than my hand, which had been filled with brood, though all were hatched. There was no honey.

The purchaser sat there on the little log, about ten inches in diameter, looking at the contents, and finally said, "Well, Elias, you know what the contract was; help yourself."

To show that I was game I proceeded to drive the little yellow-banded fellows into my box, and picked up the two pieces of comb, and away we went (on Sunday at that as that was the only time he could get away).

When I reached home I prepared a hive —I think with four frames of honey taken from an upper story, and the way those little fellows took possession was not slow. I took them to my yard, two miles from the tree, and they went into the cellar with the rest later; and when brought out in the spring they were as bright as the day they were put in.

They built the hives up rapidly, and were a nice colony when clover was ready, and at the close of basswood I extracted 100 lbs. of honey from them, and they had plenty for winter, but they did not swarm.

Now, come on, brother bee-hunters, who don't rob the bees and leave them to starve in the woods. Let us settle this question once for all.

Union Center, Wis.

[Perhaps our statements referred to in the foregoing were rather too sweeping; but we had in mind advice for beginners rather than for experts. We consider our correspondent an expert in taking bees from trees, and we believe that he can do what many others should not attempt to do along this line.—ED.]

ORIGIN OF ALBUMEN IN HONEY

Based on a lecture by Dr. Langer-Graz

BY J. A. HEBERLE, B. S.

About 17 years ago, French and German scientists, by experiment and extensive stud- scientists, by experiment and extensive studies, worked out a method of differen- different origins. In order to understand clearly what follows, it is necessary to describe briefly some of the methods.

If into an animal a dilute solution of albumen, for instance from a hen's egg, be injected a few times, the blood of this animal undergoes a very subtle change. If blood from this animal is taken, and, after coagulating, the thick part separates, there remains an almost clear solution called serum. Through the injection the serum has acquired the peculiar property of giving a precipitate with a dilute solution from the albumen of a hen's egg, but not with albumen from other sources. It may be mentioned that the serum obtained in the above-mentioned case will not act uniformly with egg albumen from various birds. With some egg albumen it will fail to give a precipitate if the dilution is 1 to 100, 1 to 200, or 1 to 1000; while with the albumen of the same source that has been used for injection it will give a distinct precipitate if the dilution is 1 to 10,000, 1 to 50,000, or even greater. The nearer related the birds are to the one from which the egg albumen was used for injection the more dilute may be the solution of the egg albumen and still give a precipitate. This biological method furnishes the only means to decide the derivation of albuminous bodies, and is used in food analysis and by court chemists. By this method blood spots, even if old and dried up, can be positively identified, whether from the human body or lower animals.

Prof. Langer began to use the biological method for the critical examination of honey in 1902. At the same time, and independently of him, von Riegler, of Budapest, worked on the same problem. Prof. Langer used albumen derived from honey, while Riegler used a dilute solution of honey for injection. The obtained serums gave precipitates with dilute solutions of honey. The results of several years of study and experiments were published in the Archives of Hygiene, 1909. Prof. Langer has determined that the albumen in honey is derived from the bees. Animals that have been treated with albumen derived from honey furnish a serum that gave a precipitate, not only with honey albumen, but also with watery extracts from the heads of bees, the larvæ of bees, of bee-bread, and with diluted chyle. Animals treated (injected) with watery extracts of the heads of bees furnished a serum which gave a precipitate with honey albumen. These reciprocal reactions pointed to the presence of a uniform albumen in honey, the heads of worker bees, larvæ of bees, bee-bread, and in chyle.

Prof. Langer's endeavor to prove the presence of albumen of vegetable origin in honey by the biological method was not successful. He recommended a detailed method for the quantitative determination of albumen in honey, and asked that it be thoroughly tested. Two scientists have reported, and the results obtained agreed with his. Especially valuable was the report of Dr. Thoeny of the Swiss health office.

Dr. Kuestenmacher, in 1910, gave it as his opinion that the albumen in the honey comes from pollen. According to his idea, the albumen of the pollen is dissolved in the pollen-stomach, and diffuses partly through its walls, and so becomes chyle, and part of it (the albumen of the pollen) gets into the honey. The mistake of Prof. Langer, writes Dr. Kuestenmacher (that the albumen in bee-bread gets into it with the saliva of the bees) I need not refute, because I have shown elsewhere the principal parts of which pollen consists, exclusive of saliva.

Prof. Langer was much interested, and either wanted to prove the assertion of Dr. Kuestenmacher (that the albumen in the honey was derived from the pollen) or disprove it. He gathered pollen himself from the hazelbush, and made a watery extract from the whole pollen as well as from pollen after triturating it with fine sand. With these dilute solutions rabbits were injected, so he obtained a pure pollen (antiserum). This gave a precipitate with a very dilute hazel-pollen extract with other pollen extracts, only in more concentrated solutions; but it gave no precipitate with honey albumen. Dr. Kuestenmacher claims that honey albumen is a pollen albumen. If that were so, a serum obtained by injection with honey albumen would give a precipitate with pollen albumen; but Prof. Langer never succeeded in obtaining a precipitate under these conditions.

According to the results of his extensive experiments he concludes that the mistake about the origin of albumen, at least of the biologically tangible albumen in honey, is on the side of Dr. Kuestenmacher.

The experiments of Dr. Langer force one to the conclusion that the albumen in honey is derived from the bee.

Kempten, Bavaria, Germany.

KOOTENAY BEEKEEPERS' ASSOCIATION, BRITISH COLUMBIA

BY W. J. SHEPPARD, HONORARY SECRETARY-TREASURER

A well-attended and enthusiastic general meeting of the newly formed Kootenay Beekeepers' Association, the first one of the kind to be organized in British Columbia, was held at the City Hall, Nelson, Nov. 27, for the purpose of electing officers and passing a constitution and by-laws. The meeting was also a thoroughly representative one, beekeepers from many of the outlying districts of the east and west Kootenays and boundary, the territory covered by the association, being present.

It has been recognized for some time that, in order to stimulate the beekeeping industry, and assist beekeepers in disposing of their honey, a system of co-operation has become absolutely necessary. Since honey of uniformly good quality in any quantity is capable of being produced in this section of the Province it could not be expected that it would be possible to dispose of it at remunerative prices unless a uniform system of putting it up for market could be provided. The beekeepers have also had considerable difficulty in the past in obtaining bee-supplies, owing to heavy freight rates and other causes, and also to get hives suitable to the climatic requirements of this region. Thousands of fruit-trees have been planted all over the territory during the past few years, and for this reason alone the keeping of bees has become essential. It is hoped, therefore, that the association will be able to accomplish useful work. That the movement is appreciated can be gauged by the fact that nearly half the beekeepers in the territory have already become members and paid the annual subscription of $1.00.

The objects of the association as set forth in the constitution and by-laws adopted at the meeting are as follows:

The objects of the association shall be to promote and encourage the keeping of bees and the most suitable methods for their profitable management.

To assist members of the association in disposing of their produce to the best advantage by the adoption of uniformity in its "getup" for market, and the provision of a special distinctive honey-label, for the use of members only, which should ultimately tend to be looked upon by the purchaser as a guarantee of excellence and purity.

To obtain the most advantageous terms for members in the purchase of bee-supplies.

To promote and regulate local exhibitions of honey and other bee products, and arrange for the competent judging thereof.

To advocate the more general growing and cultivation of nectar-yielding trees and plants, such as linden or basswood (*Tilia Americana*), alsike clover (*Trifolium hybridum*), etc.

To aid in the dissemination of reliable and practical information with regard to the beekeeping industry, and further its progress in every way possible in the interests of the members.

The following officers were unanimously elected for the year ending September 30, 1915:

President, G. Fleming, Nelson; vice-presidents, James Johnstone, Nelson, and Major-General Lord Aylmer, Queens Bay; honorary secretary-treasurer, W. J. Sheppard, Nelson; executive committee, J. J. Campbell, Willow Point; Mrs. Casler, Nelson; J. Hyslop, Nelson; C. G. Johnson, Nelson; W. H. Rixen, Nelson; W. J. Mohr, Nelson; J. Blinco, Creston; B. Lockwood, Fruitvale; E. Alpaugh, Kaslo; R. E. Plewman, Rossland; J. H. Vestrup, Nakusp; H. W. Collins, Grand Forks; H. G. Slater, Robson; T. S. Gill, Cranbrook; G. F. Attree, Queens Bay; Auditor, J. D. Kerr, Longbeach.

White-haired Beefolk

BY GRACE ALLEN

On a vacation ramble among the Tennessee hills more than thirty miles from a railroad, we came upon this charming couple, aged seventy-six and sixty-six respectively. In an orchard on their farm were about fifty stands of bees, in old-fashioned "gums."

In their cottage yard we found them,
Back among the trees,
White-haired beefolk on a hillside,
With their countless bees
Humming happily around them,
And a quiet calm
Like an ancient benediction
Or a psalm.

Now when crowded days come bringing
Tasks that never cease,
We recall the gentle beefolk
With their steadfast peace,
And we seem to hear a singing
On a far-off hill,
Where our spirits pause and listen,
And grow still.

Heads of Grain from Different Fields



The Backlot Buzzer

Fall negligence and wide entrances only lead to winter tragedies.

Report of the Minnesota State Inspector of Apiaries

St. Paul, Minn., Oct. 10, 1914.

The Hon. A. O. Eberhart,

Governor of the State of Minnesota.

Dear Sir:—The Inspector of Apiaries herewith submits his fourth annual report, as required by law, and shows:

Number of apiaries inspected, 374; number of hives inspected, 6975; number of apiaries found diseased, 33; number of hives found diseased, 197; number of apiaries given treatment, 27; number of apiaries reinspected, 24; number of hives found incurable and destroyed, 47; number of empty hives disinfected, 25; number of box hives transferred to movable-frame hives, 13.

The above apiaries were found in the following counties: Benton, Blue Earth, Carver, Chisago, Dakota, Faribault, Fillmore, Goodhue, Hennepin, Houston, Le Sueur, Meeker, Pine, Ramsey, Rice, Sherburne, Stearns, Wabasha, Waseca, Washington, and Wright.

In my last report I discussed the discovery and treatment of "foul brood." I shall, however, make my report for this season as brief as possible, showing mostly the work that my deputies and I have accomplished.

The bee industry in the State of Minnesota has been nearly a total failure this year, the spring having been unusually wet and cold. There are a few places showing surplus honey, but in the majority of apiaries feeding has been necessary. This state of affairs makes it very unpleasant for both the beekeeper and the inspectors.

I am pleased to say that the treatment for foul brood has been a great success. We have worked hard to stamp out this disease, although we have encountered many difficulties in so doing. Permission to inspect several apiaries has been refused me this season at first, but a little patient instruction won over the beekeepers. The State law provides, of course, for compulsory inspection, but sometimes it is a little hard to make the keeper understand its benefits.

We certainly have a good law in this State. I have received requests from bee inspectors and agricultural colleges all over the country, asking for copies. The beekeepers of Minnesota have reason to be proud of this fact.

I expect to see a better honey crop next year, as conditions look very promising all over the State at this time.

Respectfully submitted,

J. ALF. HOLMBERG,
State Inspector of Apiaries.

Bees Come to Montreal as Stowaways

The record for freak stowaways belongs to the steamer Montezuma, which made port on the morning of July 22, with a good swarm of bees on board. Italian bees they were, and it was across a belt of salt water four miles wide the busy workers came when they decided to leave the European field and seek the gardens of the New World. When they arrived on board the big cargo boat, three weeks ago, they were hospitably received by Chief Engineer Stanley. They swarmed around one of the boat davits, on the after deck, where Mr. Stanley hived them in a soap-box. Since that day the bees have worked like Trojans. Their diet has been sugar and water, and whatever jam they could purloin from the ship's galley. On the warm days they were all over the ship. Mr. Stanley states that several scouts have gone out to investigate the neighborhood, in spite of the cold. When the sun comes out they will travel further afield, but no fear is felt that they will swarm off, as they seem to be very comfortable.

The bees will make the return trip in the same box, and then will be sent to Engineer Stanley's home in Wales. Mr. Stanley states he has not been stung during the voyage; and when showing the hive the bees walked all over him.

The Montezuma is the largest cargo boat running to Montreal, having a full capacity of 12,000 tons. Three and a half years ago she broke the Canadian record for immigrants, carrying 2618 in one trip to St. John's. Her cargo is general from Antwerp. At the time the Gothland, on the Scilly Islands, ran aground, the Montezuma was not far behind, and was one of the vessels to respond to the S. O. S. call.

Beauharnois, Quebec, Can. A. SASHTON.

The Effect of the War on Honey Prices in Scotland

I am in the best clover district that can be had, but I am going to a poor clover district, but one where there is miles of heather. It is only a year, now and again, that it is possible to get a big yield of heather honey, and 1914 was such a year.

The war has been greatly against the selling of honey. Shops are not buying nearly as much, for they have no one asking for it. The price has been very low. JAMES SMITH

Drungans, Newabbey, Dumfries, Scotland, Nov. 9.

Ventilated Coat Sleeves

In the sketches herewith I illustrate a ventilated wristlet, or cuff, made of wire fly-screen, connecting the gloves to the sleeve of the coat, or connecting the gloves with gauntlets, to enable the wearer, when handling vicious bees, to enjoy cool arms and hands in consequence of the free circulation of air about the bare wrists. The wire-screen wristlets protect from the stings of the bees by being held away from the bare wrists half an inch or more by the half-inch spiral coils of wire soldered or substantiallly fastened to the wristlet, as shown in Figs. 3 and 4.

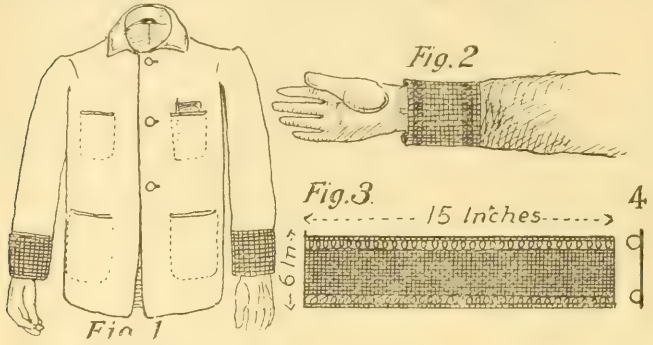


Fig. 3 shows the wristlet straightened out flat with the half-inch spiral coils of wire attached in the best shape for sending through the mail.

Fig. 1 shows a work coat fitted with ventilated wire-screen wristlets or cuffs. Fig. 2 shows a gauntlet glove similarly fitted.

I have used a coat fitted with wire-screen wristlets or cuffs as shown in Fig. 1 for the past several years when handling vicious bees during hot dry weather after the end of the honey-flow, and find it immensely more comfortable than a coat without them, having the gloves sewed directly to the sleeves of the coat.

Dehesa, Cal. R. J. KRAUSE.

An Outdoor Colony Put in a Hive Nov. 15

A man while hunting, Nov. 4, near my apiary, saw four pieces of comb on an oak-tree, and found a swarm of bees on a little bush about 30 feet away from the oak. It was a cold night, and the tree stood by itself in an open field. The bees left the combs to go to the bush, no doubt to get out of the wind.

On Nov. 5 I hived the bees and gave them combs of honey. The combs on the limb of the tree were about eight inches across, while one was smaller. This is the first time I ever hived a swarm in November.

Last season, which was very dry, with 17 colonies of bees I secured about 800 pounds of honey, mostly extracted. My apiary is at Remington, Va., and I work in Washington, D. C., 57 miles away, so that I do not see my bees in the summer oftener than once in every three or four weks. I had no swarm in 1914. I keep my queens clipped.

Washington, D. C. F. TAYLOR THOMPSON.

Bees on Shares or for Rent

I desire some information concerning what is considered as a fair and safe proposition to make to the owner of an apiary for its rental.

Houghton, N. Y., Nov. 28. H. R. SMITH.

[When bees are put out on a rental basis, or on shares, the party who furnishes the bees receives half the honey and beeswax and all the increase, while the party who furnishes the labor receives half the honey and the beeswax. but no increase. If he participates in the last mentioned he is inclined to run the bees for increase and not for honey. He will, therefore, keep the increase down as much as possible and run the whole for honey. For fuller particulars you are referred to "Bees on Shares" in our A B C and X Y Z of Bee Culture.—ED.]

A 20 x 20 Thirteen-frame Hive as Standard

A subject of especial interest is that of a larger hive, under discussion in the last two numbers of GLEANINGS. I believe that honey-producers quite generally are arriving at the one opinion that the ten-frame hive is too small. The eight-frame is not worthy of mentioning as a beehive. It may do for a home for a nucleus for a short time. I believe that the eight-frame hive is the direct cause of excessive swarming in this locality. I believe that a standard size should be agreed upon, and manufactured as a standard by the supply-houses. This, perhaps, would be hard to agree upon, as at present there seems to be a great diversity of opinion. To my mind it seems that the square hive, 20 x 20 inches, containing 13 L. frames, would make an ideal standard hive. True, many of our best queens under proper care would fill a larger hive; but with this hive it would not require any great amount of manipulation to keep ahead of the most prolific queen.

In the past few years more than half of my queens under stimulative feeding (one-half pint warm sugar syrup each evening from the close of fruit-bloom until the opening of clover bloom) have filled from fifteen to twenty L. frames with brood before the clover bloom opens. What we want is a hive that will provide plenty of room for breeding to the limit of their strength, assist in curtailing swarming, provide a good honey-producing hive, and at the same time prove a good winter hive without excessive manipulation. This 20 x 20 square hive, it seems, will strike a happy medium for breeding, honey production, and summer.

For winter, furnish it with a telescope top ten or eleven inches deep, and large enough to allow half-inch packing on all sides and a heavy packing on top under cover. This, I believe, will make an ideal hive for outdoor wintering. While brother Hand makes a good plea to cut out excessive manipulation, it seems to me that his sixteen-frame hive with an eight-frame inside for winter, with sixteen-frame super added, requires about as much manipulation as any plan I know of in use or advocated by any one else.

Removing the queen together with two frames of brood at the beginning of the honey-flow, to prevent swarming, works very sucessfully in preventing swarming, giving a good honey yield and an increase of 100 per cent with a ten-frame hive.

Urbana, Ohio. O. J. JANES.

Sections Stamped with Too Low a Weight

We were much interested in reading the article on page 221, Dec. 1, on the net-weight law as applied to the comb-honey business. Both your comments and those of Mr. R. A. Burnett, of Chicago, meet our views. We think that if the beekeepers would take a little more pains and very little more labor they could comply with the law, and the results would be more satisfactory to them and to the dealers. As Mr. Burnett says, "make the sec-

tions more equal in weight in each case." For instance, we handled a car of comb honey this fall in which there was entirely too much difference in the marked weights of the sections and the actual weights. We found sections marked 8 ounces when they actually weighed on the scales from 13 to 15 ounces. This was the way with the majority of the cases in the car. If these sections had been marked 12 or 13 ounces, the law would have been complied with, and the honey sold for more money. About the first question our customers ask us when we offer honey for sale is, "What do the sections weigh?" We open a case, showing a section marked "8 ounces," and the customer says, "Too light weight;" consequently it is difficult to get all the honey is actually worth if it had been properly marked. Eight ounces complies with the law all right; but the seller gets less for the honey than if it were marked correctly.

We think that this is really an unnecessary law, and the benefits the beekeepers and the consumers will gain will not be equal to the expense and labor, and the consumer will pay just as much or more for the honey; but it is the law, and all concerned must make the best of it.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Dec. 4.

Binding Magazines with Nails

No doubt many of your readers feel an interest in saving copies of GLEANINGS for reference, but do not wish to go to the expense of buying binders or having them bound. In the following method I find a good and cheap way to keep them, and have them always arranged for ready use. I find that twelve numbers, or half of the year, make about the right number for putting together. Select these and make the backs and bottom edge even by holding the lot edgewise on the table; also make sure that you have them arranged properly.

Now use eight nails of the size for nailing frames together, also eight small pieces of oilcloth or thin leather about ½ inch square. I find that oilcloth doubled to make the size is best.

Drive the nails about ¼ inch from the back edge of the bunch of numbers selected, four to each side, making use of the oilcloth pieces to prevent the heads of the nails from sinking into the paper and tearing out later.

Four of these nails will lack just a little of going through, and the four driven from the other side will make the binding complete, so that you will have your numbers easily bound, and they will not come apart.

This will also apply to the other bee-journals; but I find that the twelve numbers, or full year, can be put together.

Shellman, Ga. D. W. HOWELL.

A Bid for National Association Advertising

Mr. Editor:—Judging from quite a number of letters we have had from beekeepers in various parts of the country we imagine that, when the National Association meets in February, there will be some discussion about advertising, as there has been for years, and especially as to the use of a page of reading-matter relating to honey in the *American Grocer* each fourth week during one year—13 times—to show grocers that they can sell more honey.

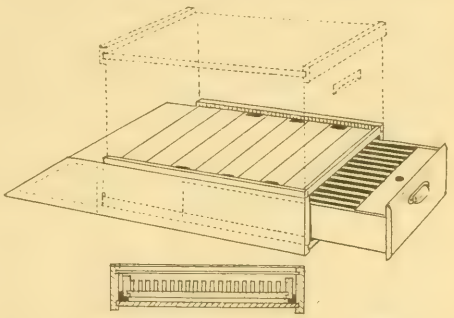
The writer for a long time has been firm in the belief that the consumption of honey in the United States might be largely increased, and a good point to start with is the grocery trade—not that the *American Grocer* covers the whole fraternity, but it is the oldest (and we believe it to be the most carefully read) paper of its class—one eminently worthy of the support of the National Association. The cost of this page per member of the Association will be a mere bagatelle—so little, indeed, that an outlay five times as large would not be burdensome, and thus other publications might be used too. If the National Association frowns on the use of this journal, we believe there are individual beekeepers who will use the space—being willing to place the whole burden on their own shoulders—just as in some churches some "pillars" seem willing to "pay the freight" for the benefit of the whole body. I should like to have the opinions of your readers as to this project. The cost for the 13 pages will be $30 for each insertion. If we may be trusted to do so we will get up the matter here, though we by no means insist on doing the work.

THE AMERICAN GROCER,
per F. J. Root, Adv. Manager.

New York, Dec. 9.

Bucher's Drawer Feeder

I am sending a sketch of a feeder. I do not know that it is new, but it is the most satisfactory of any of the different feeders I have tried. The case is made the width of the hive, and three or four inches longer, to provide an alighting-place. There is a bee-space left all around the drawer inside the case so that no bees can be killed in opening and closing the drawer. The drawer is provided with thin strips spaced about ½ inch apart to prevent bees from drowning. Of course the depth of the drawer will determine the amount of feed it will hold. If a strip with a hole for pouring syrup is fastened against



the drawer end, flush with the top of the sides, with wire screen tacked over the hole on the under side of the strip, no bees can get out while feed is given.

As an experiment, on June 13, 1914, we took an old box hive that had cast a swarm about 17 days previously, and drummed the bees out, making sure of the queen, then dumped them in front of the entrance of a new hive filled with full sheets of foundation, except one frame of honey (our honey-flow had ceased at that time). The old hive was then set close to the rear of and connected to the new hive with a tube and Porter bee-escape in such a way that the remaining bees in the old hive on coming out were compelled to pass through the tube into the new hive. In three or four days practically all the bees were in the new hive. Then they were set over the feeder, and their stores fed back by simply filling the drawer with the old combs. When the first batch was clean, the drawer was refilled and so on. In a short time those bees were in a new hive, with new straight combs, without the disagreeable mess of trying to fit old crooked combs in frames, and a poor job in the end.

Littlestown, Pa., Sept. 15. C. F. BUCHER.

The Net-weight Law a Nuisance

The net-weight law has caused me no end of trouble. I sent for three rubber stamps, and marked all my sections that weighed 12½ oz. or more. However, R. A. Burnett, of Chicago, says that every section weighing within an ounce should be cased

separately. This would mean that I would have to have several more stamps to mark the different sections. If one case has its sections marked 12½ oz., and another 14 or 15 oz., I am afraid that the case marked 12½ oz. would not bring the price the other would; yet the one marked 12½ oz. may be No. 1 comb honey.

Plum City, Wis. H. E. LUEBKER.

Beekeeping in Texas

We began work about the first of March, going through the colonies which had come through the winter in fine condition on the summer stands. We found many of the brood-chambers so full of honey that the queens had very little room to work.

We take out one or two frames of honey and put foundation in place of the honey. If we have any weak colonies that seem to need help in the beginning of spring we take honey, and sometimes brood from the strong hives, and give to the weak ones; then about the time the huajilla is beginning to bloom we put two weak colonies together, one on top of the other with a newspaper between them, so we have all colonies *strong* at the beginning of the honey-flow.

We store the frames of honey taken from the hives in early spring in the honey-house; and as we hive the swarms we give each swarm one or two frames of honey. We always wait until near night to do this work, so we have no trouble with robbers. Our bees usually gather enough honey from the persimmon and prairie flowers for brood-rearing through the early spring. The huajilla is the earliest bloom that we get any marketable honey from. Then comes the catclaw. These are the main sources for our crop in this country. Some years we get some honey from horsemint, whitebrush, and some few other flowers that yield very good honey in early summer.

We had a fine huajilla bloom last season. Just as that was giving out, the catclaw bloomed—the finest crop of bloom we ever had; but the rainy weather set in and cut the crop from that source short.

We got 12,000 lbs. from our two apiaries—185 colonies in all—mostly bulk comb honey. We have about 3000 lbs. of that on hand yet.

PREVENTING GRANULATION OF BULK COMB HONEY.

We heated the extracted honey that we packed our comb honey in. We heated it very slowly, and kept it hot a long time. We did not let it get to the boiling-point and did not spoil the flavor nor turn it dark, and none of it has granulated so far.

We had a broomweed bloom last fall, and had no cold weather, but a good deal of rain. The hives filled up rapidly, giving a crop of that off-grade honey to extract. It is worthless, as there is so much of the better honey on the market.

We went to the apiary a few weeks ago and put some foundation in the brood-chambers—on the average one frame to the colony—so that we would have more combs to hive swarms on in spring instead of so much of the off-grade honey.

Del Rio, Tex., Nov. 26. MRS. C. DISHMAN.

Queens and After-swarms

Last season my whole yard swarmed at once, about 150 colonies in ten days. Much mixing occurred. I feared there would be many queens missing for that reason, and because there was a pest of bee-martins. The swarming took place during a heavy honey-flow from alfalfa. There were many after-swarms, having from two to six well-developed virgin queens. I proceeded as follows: Putting a few queen-cages in my pocket, with the ends closed with wads of cloth, I took a dishpan to where the swarm had settled, and shook the bees into it. I picked out the virgins and caged them, shaking the bees about as necessary, then took the pan to the middle of the yard and threw them into the air. I mated the virgins in Rauchfuss nucleus boxes holding three common comb-honey sections, and when inspecting for fresh eggs I introduced them into the queenless colonies, which were 15 in a total of 270 in the apiary.

I do not claim this is the way to raise the best queens, though I fail to see in what way they are inferior to any of those left in the hives after natural swarming. It did, however, take care of the queenlessness, and also put the bees of the after-swarms back where they belonged.

Zapata, N. M. H. H. BROWN.

A New Way to Stop Robbing

Find the colony which is *doing* the robbing, and cover it over with old carpet or burlap, or grass or weeds. Leave its entrance wide open and tuck the sacking down close under the hive so those out will have much difficulty in finding their way into the hive. May be they will not get in. There will be something doing around that hive within a few minutes. Leave it that way for an hour or two. The colony will come to no harm, even on the hottest day here.

Also go to the colony being robbed, and smoke slightly and close the entrance for a minute and pound the hive; then open the entrance for a few minutes. The robbers will all leave quickly. Then contract the entrance to two bee-spaces and leave for a day or two, and you will have no further difficulty. This method has never failed here. I have never seen this in print. May be it will help some one.

Vincent, Ohio. W. S. BASIN.

Terrible Fire in California

On Nov. 19 we had one of the worst fires here in the mountains ever known. It burned a strip 5 miles wide and 30 long. The people had to run for their lives. I lost 90 stands of bees, my bee-house, eight-frame extractor, gasoline-engine—in fact, every thing I had. I was living in my honey-house, and I even lost my bed and bedding, cooking utensils, 367 empty hives and frames. Besides mine there were two houses and a barn burned and six head of horses, and five deer.

Arroyo Grande, Cal., Dec. 9. M. D. PRICE.

[GLEANINGS extends sympathy. A disaster of this kind is terrible indeed.—ED.]

Queen Accepted after Cells were Started

I have had good success with direct introduction of queens with smoke, although I had three failures which I cannot account for. I had also a rare experience. To a populous colony of cross hybrids in a two-story hive I introduced a queen. On the fourth day I examined the colony, and found numerous cells started. I grafted them all. On the third day I examined to see how many accepted. Not one cell was in existence, and I found the queen introduced all right. C. M. CARMONA.

Trinidad, British West Indies.

Bee Martins—Do They Do Damage in a Honey-producing Yard?

Would you kindly advise whether it is advisable to do away with martin-houses near an apiary? We love to have these birds on our fruit-farm; but I am not sure that they may not do serious harm to our bees. Some claim they eat drones only.

Chicago, Ill., Nov. 17. T. H. HOLMES.

[There is a bird, known as the bee-martin, that kills bees and queens; but unless you are rearing queens in considerable numbers, we do not think you need to pay any attention to the birds, as the few bee-martin houses that you have there will do no appreciable damage.

Yes, these birds eat drones; but they are also fond of queens. ED.]

A. I. Root

OUR HOMES

Editor

But I say unto you, that ye resist not evil.—MATT. 5:39.

Pray for them which despitefully use you, and persecute you.—MATT. 5:44.

Some of you may, perhaps, feel like saying, "Why, brother Root, you have had the above text over and over. Can't you think or talk about something else?" No, friends, I cannot think or talk about something else when this same "Gospel of Christ Jesus" is still such an "*unexplored* region" as I told my good mother years ago.

About the first thing on reaching our Florida home was to see if the Sears automobile was in good trim after standing unused six months in the auto house. It went off promptly on almost the first cranking. Have you forgotten about the mischievous boys who vexed and annoyed me two years ago? Well, if you have, the boys haven't. Just as soon as I stopped before a store, two of them, with mischief in their looks, pounced on my auto, began pinching the tires, blowing the horn, and pulling and twisting almost every thing movable. The impulse to forbid them touching my property was almost irresistible; but (thank God) I had learned some lessons. I took no notice of them, and started to go into the store; but as I neared the door and heard them rattling things the temptation was so great to look around and *see* what they were at I could hardly stand it, and could only mentally groan in distress, "Lord, help!" I think I added, "O Lord, give me faith to believe *you* will not only take care of my machine but of my poor self also while I am *trying* to follow your commands."

Years ago, when I was laboring in the Medina jail with my poor friend "Fred," he said that, while this new doctrine might be right, it "went awfully agin the grain," and I realized it.

When I came out of the store they had stopped meddling (my prayer was promptly answered, please notice), and I said, as if nothing had annoyed me:

"Boys, can you tell me where Roy Parker's place is?"

"Oh, yes! we'll show you. Sha'n't I crank your machine?"

As he was a small boy, and hardly equal to the task, his companion laughed at his apparent failure; but I gave him some instructions; and when off it went I asked them to get in and ride with me, and we parted the best of friends.

Dear friends, the above is only a trifling incident. Why should I take pains to tell it at all? Because it embodies a great truth. These boys were simply wanting something to do. I succeeded in diverting them from their mischief into something useful. They are a fair type of boys all over our land. In our recent temperance crusade the question was asked, "Which is of more importance—the *revenue* or our boys?" Also, "Shall we pay the revenue by *sacrificing* our boys?"

A year ago two of my auto tires were punctured while my machine was left some time on the street, and how did I know that my tires would not be punctured again while I was in the store trading? It *did* occur to me; but I answered Satan that saving these two boys was of far more moment than many "tires" or even a *whole automobile.*

Very soon after our arrival a boy's face on the street startled me, and I soon recalled it was the boy who (by God's providence) I saved from a watery grave.* He is now bringing me every evening the Bradentown daily paper. In answer to my prayer, God gave him back to life, and a further responsibility rests on my poor shoulders. Is it not of far *more* importance that I win him to Christ Jesus and *everlasting* life? Whenever I meet him his face appeals to me as if there exists a sacred relationship between us. Does it not behoove me to feel a greater interest in *all* the boys because of that incident?

A word more about being in *haste* to "resist evil." Do we who are church members remember as we should that "a soft answer turneth away wrath"?

Mrs. Root and I were once riding with our old pastor, Rev. A. T. Reed. The livery horse balked. Mr. Reed said, "Wait a minute." He jumped out of the buggy, unbuckled the "belly-band," and quickly buckled it up again, "chirrupped" to the horse, and off we went all right. In answer to our surprised request for explanation for such an absurd remedy he replied:

"My act simply diverted the attention of the horse from his ugly spell; and when I got back into the buggy and told him to go he had forgotten about being contrary."

* A few weeks ago I attended a moving-picture show that is attracting much attention just now—John Barleycorn. It seems "John" became discouraged in the effort to break away from his foe; and while partly intoxicated he attempted suicide by jumping off the dock. His struggle in the water, and failing strength as he made his last faint struggle when he rose the last time, were so real it recalled the incident of the drowning boy so vividly that I involuntarily started before I recalled *why* the scene affected me so.

Are we not much like the dumb brutes in this respect? The boys were surprised (and disappointed) because they did not get the scolding that would naturally follow; and finally (like the horse) they forgot about the mischief they had planned. When you learn to love your enemies you will have the "happy surprise" of finding they are enemies no longer, but friends.

I have just read in the daily of two men who got into an argument about the war. It ended by both drawing revolvers and riddling each other with bullets. Will any one explain what was settled or accomplished by this silly and wicked act? When I was a boy, skeptics made fun of the stories in the Bible about being "possessed of devils." Were not these two men *possessed of devils* to do this? and would it be so very preposterous to suppose *whole nations* are *just now* in enthrallment of "legions of devils"? How does it come these two men had revolvers, defying the law against concealed weapons? and does not the incident point out the worse than folly of equipment for war that runs up into *many millions?*

HOMELESS BABES AND "BABELESS" HOMES.

On these pages I have often spoken of the efforts that are being made to save the babies that have been so long dying in infancy, and dying for want of intelligent and proper care. A few days ago an agent of the Ohio State Board of Charities spoke at our church about fifteen minutes just before the sermon. His business is to look up the orphaned babies of the State of Ohio, or babies that have no parents or relatives to give them proper care. That is one part of his business. The other part is to hunt up fathers and mothers who have no babies or little children of their own, and who are willing to take a child and give it proper care. Let me digress a little right here.

Somewhere in this big wide world is a boy eighteen or nineteen years old. When he was born his mother was unmarried; but his father was rich enough to hire her to "keep still;" and the baby was sent to an Ohio infirmary. Perhaps we had better call it an Ohio "poorhouse" on this occasion. When this boy got to be old enough to be of some use in choring, etc., a well-to-do grasping farmer agreed to take him. I think he was "bound out" to the farmer, for that is what they called it then. Well, the agreement was that the boy was to have board and clothes, and a certain amount of schooling. My attention was first called to him when he was about fifteen years old. He was strong, and able to do a man's work, and *had* been doing it. But he had no wages, and was sent to school so little, with so many interruptions, that his schooling amounted to about nothing. He ran away, as many another poor boy has done, and changed his name so his old "tormentor" could not find him without trouble. I consulted an attorney, and set the boy at work. He was so willing, and put in with such energy and vigor, that it really touched my heart. Well, so many cases of this kind have come to light by investigation, that the State of Ohio (may God be praised) has appointed a "commission" of men and women, first to visit the homes of those who are willing to take a child and see what sort of home it is, and what kind of people they are. Then at regular intervals the home is visited *again*, the child looked after and interviewed, to see if he has a fair chance. My friend, did you ever consider that every baby in our land, boy or girl, has a right to live and have reasonable care? The responsibility rests on you and me. From the moment a child is born under the American flag there is, thank God, a right invested in *him* or *her* to "life, liberty, and the pursuit of happiness;" and if the circumstances of the child's birth have not given him this fair chance, you and I are responsible for it. Please recall the words of the dear Savior when he said, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

Of course, the speaker's talk that Sunday morning reminded me of the picture on page 76 of our issue for January 15th last. Dear friends, I have had no end of kind words for that article. If you have a copy of GLEANINGS handy, of that date, it might be worth your while to look it up; and after you have looked it up, read the letter below:

STATE OF OHIO,
BOARD OF STATE CHARITIES,
1010 HARTMAN BUILDING, COLUMBUS.

My dear Mr. Root:—I thank you for the courtesy you extended to me Monday, and also for your willingness to mention Ohio's children who are in need of mother love in your GLEANINGS. I am very much interested in the article you gave me which contained the story of the deserted baby. It reminded me somewhat of a little one whom I carried a long distance in my arms on the train (and who cried almost the entire distance). She had been picked out of an ash-barrel one January morning. A woman in the morning heard a sound that she thought was a cat. On examining the debris and garbage she discovered this beautiful little two-months'-old baby nearly dead from exhaustion and neglect. The little one was placed in a beautiful Christian home, and has been legally adopted. The house she lives in to-day cost nearly $40,000. She is a splendid fine little girl of fifteen, and has brought great sunshine into the lives of her foster parents.

I was also interested in your article concerning your trip from Florida with your wife. I think I

have a strange feeling of respect for a man of your age who speaks and writes so tenderly of his wife. Of course it ought to be the rule, but it isn't.

With best wishes for the success of your Christian and humanitarian work that you are doing in connection with your business, not divorcing them as some men do, I am Yours sincerely,

C. V. WILLIAMS,
Director Children's Welfare Department.

Now, if any citizen of the State of Ohio who has read the above knows of a baby neglected and uncared for, will he please notify the writer of the above letter? and if you are willing to *take* a baby, or know of somebody else who would do so, send the names to the same address. May God help us in our efforts to care for the homeless babies.

HIGH-PRESSURE GARDENING

DASHEENS UP TO DATE.

Our neighbor, Mr. Stanton, got a peck of tubers of us last April, from which he has raised ten bushels. On a part of his ground that was damp black muck he got a good full peck from only one hill, and this hill came from a single small tuber. After seeing the peck of tubers I came home and had Wesley dig one of *our* best hills, and we got a heaping *half-bushel*. How is that for reducing the "high cost of living"? Are they as good, and will they really take the place of Irish potatoes? There *is* a "drawback" to the dasheen as food. Once in a while you get a hill that has the wild untamed "acridity." The government bulletin mentions this, you may recall, and recommends baking soda as a corrective. We, in our own home, have never got hold of such; but Huber and his wife had one hill of our raising that "stung their throats" quite badly. Mr. Stanton says they have also had one such experience, and the women folks since then are prejudiced against the dasheen; but as for himself he wants them *every* meal instead of Irish potatoes. He expects to plant his whole ten bushels.

There is just one other fault. When baked we occasionally get a tuber, or more frequently a corm that is tough and watery, and won't bake so as to mash up dry and floury. Sometimes a small part of a tuber, say one end, will be like this; but when stewed we have never noticed any such trouble.

Another neighbor, Mr. D. Abbott, a beekeeper, has perhaps 100 bushels of fine matured tubers, and I would advise the friends who want seed to correspond with him. As for myself I still consider a nice baked dasheen (such as we have just had for dinner) as far ahead of any sweet or Irish potato.

So far we have not succeeded (so far as I recall) in getting any tubers to go across the ocean without spoiling. It seems to be because they cannot have sufficient ventilation in the mail. They go to California and other remote States, but not to foreign countries. Now, while this is true I have dasheen growing in our garden, the tubers of which were sent me from South Africa. See p. 471, June 15, 1913. I cannot recall now how friend Thompson packed the tubers; but *he* may recall when he sees this, and let us know.

TREASURE ON EARTH, AND TREASURE IN HEAVEN.

I have a walnut-tree that is a very strange one. It is a cross between a franquette and an English walnut. This tree is 11 years old, and never puts forth a leaf until July 2 or 3, and then it will grow two or three feet of wood, and harden up the wood for winter so frost will not freeze it. It bore four nuts last year. We ate one, and found it finer than any nut we ever saw before. We planted the three remaining nuts, and now we have two little trees from the three nuts. Now, Mr. Root, would you like to have me send you one of these trees this fall?

I am doing some experimental work. I have a chestnut grafted on to a black oak. It bore chestnuts the second year after grafting. They are good, and the tree is full of burrs this year, and promises a large crop of nuts.

Let me tell you something else. You are the cause of me and my family going to church here; and now we have a nice Sunday-school, of which I am the superintendent. The people here have tried to break it up, but I am in it to stay.

Pine Grove, Cal., Aug. 13. GEORGE PRESTON.

Many thanks, my good friend, for the offer of a walnut-tree. In our Florida home, I have several walnut-trees, and perhaps you had better mail yours to me there, as the climate is more like yours in California.

May God abundantly bless that Sunday-school and its superintendent. Such work may not be treasures laid up on earth, but it is treasures in heaven that can never be taken away.

GREEN CORN; MAKING IT MORE DIGESTIBLE.

Friend Root:—Did you ever use a corn-scratcher on your green corn? If you have never used one you would find a very decided improvement in the corn, and find it much more digestible, as you do not get any of the hulls of the corn. I do not remember seeing you mention it, so I concluded you had not.

Oregon City, Ore. H. A. BLY.

My good friend, I thank you especially, as I have noticed green corn sometimes distresses me, and it occurred to me these tough hulls are difficult of digestion. I now recall seeing such a "scratcher," as you call

it, once, in the home of a relative. As I remember it was a little brush of sharp steel wires. Can any one tell us where to get the implement?

SWEET CLOVER THE SUBSOILER.

We clip the following from *Farm and Fireside:*

Sweet clover is one of the best miners we have. Few plants develop root systems equal to those of this plant. Judge Quarton said so when pointing in *Farm and Fireside* to the growth of sweet clover on his farm. But sometimes we need to see for ourselves. Grantham, of Delaware, has made a comparison. He says:

"A year ago sweet clover, alfalfa, and mammoth red clover were sown side by side in oats. Owing to the lateness of the season, and wet condition of the ground, the oats were not seeded until April. When the oats were harvested the sweet clover had made a growth of 18 inches, the alfalfa 10 inches, and the mammoth red clover about 5 inches. On August 1 a number of plants of each of the legumes was dug up, care being taken to remove the roots with as little damage as possible. The dry, hard condition of the soil prevented the removal of the roots of the alfalfa and sweet clover to their full length. The sweet-clover roots were fully twice the length and size of the alfalfa roots. The root development of sweet clover during a period of ninety days, when grown with a nurse crop of oats, indicates the value of the plant as a subsoiler and its bearing on soil improvement.

The soil on which the legumes were grown is a clay loam, and produced 50 bushels of oats per acre this year."

Besides this evidence in favor of sweet clover we must remember that the sweet-clover roots, quick in growth as they are, are likewise quick to rot. Consequently they do not make the trouble that alfalfa roots do at plowing time, and some say they equal alfalfa roots as soil-enrichers. And yet sweet clover is not esteemed as is alfalfa. Why? Perhaps we have used neither of them as much as we should, and so do not fully appreciate either of these crops.

TEMPERANCE

"NATION WIDE" PROHIBITION NOT SO "DISASTROUS" AFTER ALL.

The following, which we copy from the Jacksonville *Times-Union* of Nov. 19, comes pretty near being the most convincing argument for absolute prohibition I ever came across. Can the Ohio Anti-saloon League find anything better to give the people in the present crusade than this? Just think of cutting off a "revenue" of *five hundred millions at one stroke, and in one day,* and instead of "disaster" *great good* came at once. Read the following:

COMPLETE PROHIBITION IN EFFECT THROUGHOUT THE RUSSIAN EMPIRE.

PETROGRAD, Nov. 18.—Actual and complete prohibition is in force to-day throughout the entire Russian empire; and not a drop of vodka, whisky, brandy, gin, nor any other strong drink is obtainable from one end to the other of an area populated by 150,000,000 people, and comprising one-sixth of the habitable globe.

In every foot of Russian territory the word prohibition is taken literally. It does not mean a partially successful attempt to curtail liquor consumption, resulting in drinking in secret places, abuse of medical licenses, and general evasion and subterfuges. It does mean that a vast population who consumed $1,000,000,000 worth of vodka a year; whose ordinary condition has been described by Russians themselves as ranging from a slight degree of stimulation upward, has been lifted almost in one day to sobriety.

On that day, when the mobilization began, policemen visited every public place where vodka is sold, locked up the supply of liquor, which is almost pure alcohol, and placed on the shop the imperial seal. Since the manufacture and sale of vodka is a government monopoly it is not difficult to enforce prohibition; and from the day the shops were closed drunkenness vanished.

The results already are seen in the peasantry. They are beginning to look like a different race. Marks of suffering, the pinched looks of illness and improper nourishment, have gone from their faces. Their clothes are cleaner, and both men and women appear more neatly and better dressed. Homes of the poor, formerly destitute, now present something like order and thrift.

In Petrograd and Moscow the effect is fairly startling. On holidays inebriates always filled the police stations and often lay about in the streets. To-day unattended women may pass at night through portions of these cities where it formerly was dangerous for men. Minor crimes and misdemeanors have almost vanished.

This miracle virtually has been accomplished by one man. He is Michael D. Tchelisheff, a peasant by birth, originally a house painter by profession, then mayor of the city of Samara, and now a millionaire. Physically he is a giant, standing over six feet four inches. Although 55 years of age, his movements display the energy of youth; his eyes are animated, and his black hair is not tinged with gray.

In Petrograd Mr. Tchelisheff goes about clad in a blue blouse with a tasseled girdle and baggy black breeches tucked in heavy boots. He offers his visitors tea and fruit.

Speaking to-day to a representative of the Associated Press of what he had accomplished for sobriety in Russia, Mr. Tchelisheff said:

"I was reared in a small Russian village without schools. I picked up an education from old newspapers and stray books. One day I chanced upon a book which treated of alcohol. It stated that vodka was poison. I was so impressed, knowing that everybody drank vodka, that I asked the first physician I met if the statements were true. He said yes. I decided to take every opportunity to discover more about the use of vodka.

"At the end of the eighties there came famine in Russia followed by agrarian troubles. I saw a crowd of peasants demand from a landlord all the grain and foodstuffs in his granary, and I noted that every man who was taking part in this incident was a drinking man, while their abstemious fellow villagers had sufficient provisions in their own homes.

"At Samara I decided to do more than passively disapprove of vodka. At this time I was an alderman. Many tenants in my houses were working men. One night a drunken father in one of my houses killed his wife. Then I decided to fight vodka with all my strength.

"On supposition that the government was selling vodka for revenue, I calculated the revenue received from its consumption in Samara. I then introduced a bill in the city council providing that the city give this sum to the imperial treasury with the request that the sale of vodka be prohibited. This bill was passed. The money was offered to the government, but the government refused it.

"It dawned upon me that Russian bureaucracy did not want the people sober, because it was easier to rule autocratically a drunken mob than a sober people.

"That was seven years ago. Later I was chosen mayor of Samara, and subsequently elected to the duma on an anti-vodka platform. In the duma I proposed a bill permitting the inhabitants of any town to close the local vodka shops, and providing also that every bottle of vodka should bear a label with the word poison. At my request the wording of this label, in which the evils of vodka were set forth, was done by Leo Tolstoi. This bill passed the duma, but in the imperial council was amended and finally tabled.

"I then begged an audience of Emperor Nicholas. He received me with great kindness, and listened to me patiently. He was impressed with my recital that more revolutionary and social excesses were committed by drunkards than by any other class. He promised to speak to his minister of finance concerning the prohibition of vodka.

"Disappointed at the failure of my bill, I had abandoned my seat in the duma. It was evident the bureaucracy had obstructed the measure. Minister of Finance Kokovsoff regarded it as a dangerous innovation, depriving the government of 1,000,000,000 rubles ($500,000,000) yearly.

"While I lobbied in Petrograd the emperor visited the country around Moscow and saw the havoc of vodka. He then dismissed Kokovsoff and appointed the present minister of finance, M. Bark.

"Mobilization precipitated the anti-vodka measure. The grand duke, remembering the disorganization due to drunkenness during the mobilization of 1904, ordered prohibition except in first-class clubs and restaurants. This order, enforced for one month, showed the Russian authorities the value of abstinence. In spite of the depression of war, the paralysis of business, and the closing of factories, the people felt no privation. Savings banks showed an increase in deposits. There was a boom in the sale of meats, groceries, clothing, dry goods, and house furnishings.

"The 30,000,000 rubles a day that had been paid for vodka were now being spent for necessities. The average working week increased from three and four days to six, the numerous holidays of the drinker having been eliminated. The working day also became longer, and the efficiency of the worker was perhaps doubled. Women and children who were seldom without marks showing the violence of husband and father, suddenly found themselves in an undreamed-of paradise. There were no blows, no rough treatment, and no insults. There was bread on the table, milk for the babies, and a fire in the kitchen.

"I decided to seize this occasion for a press campaign so far as this is possible in Russia. I organized delegations to present petitions to the proper authorities for prolonging this new sobriety for the duration of the war. This step found favor with his imperial majesty, and an order was issued to that effect. A similar campaign to remove the licenses from privileged restaurants and clubs was successful, and strong liquor was no longer of value anywhere in Russia.

"The second month of abstinence made the manifold advantages so clear to everybody that when we called upon his majesty to thank him for his recent orders he promised that the vodka business of the government would be given up forever."

"NO MORE HEROIC REFORM MEASURE WAS EVER INTRODUCED BY ANY GOVERNMENT."

A friend in New York sent the following, but neglected to say what New York paper it comes from:

RUSSIA'S GREAT DRINK REFORM.

If the manufacture, sale, and consumption of whisky and all "hard" liquor were suddenly stopped in the United States—if the country's 2300 distilleries were put out of business by a stroke of the pen, and the Government's income of $163,879,342 yearly from this source absolutely cut off—we should have a condition of things approximately resembling that brought about in Russia by the abolition of the vodka traffic. Yet even this parallel does not fully represent the revolution in Russia's drinking habits whereby 150,000,000 persons are affected at an annual cost to the Government of $500,000,000 in revenue.

Doubtless no more heroic reform measure was ever introduced by any Government. It has remained for the absolute monarchy whose name is synonymous with oppression, but which yet anticipated our own free nation in liberating the serf, to give force to what is altogether the most remarkable temperance movement in the world's history.

Here is something more, from the New York *Times:*

But that Russia will profit in every way except that of immediate and direct income from such suppression of the use of vodka as is attained need not be seriously doubted. As always, too, the loss of revenue will be more than balanced by increased capacity to pay taxes, and possibly in the increased sobriety of its people the great empire will find more than compensation for its military expenditures of money and men.

France seems to be meditating like though less sweeping reforms, and hints of similar plunges into abstinence more or less nearly total are coming from other countries involved in the war. It all marks the world's new appreciation that alcohol and efficiency of any sort do not go together. This fact is now demonstrable by scientific tests of the most convincing sort, and it applies to war as well as to any other form of activity.

WHAT A QUART OF WHISKY MAY COST A COUNTY.

Since there has been such a talk about the loss of revenue if the saloons were ruled out, the following, clipped from the *New Republic,* may give us some light on the subject:

One of the citizens of Belmont County went to Bellaire some years ago and bought a quart of whisky, got drunk, and went out and killed a man. It cost the county about $5000 to send the murderer to the penitentiary. The circuit court set aside the verdict, and sent the case back to the lower court for a new trial. It cost the county about $6000 more to land the man behind the bars at Columbus.

Two years later Governor Harmon pardoned the murderer. The fellow went right back to Belmont County and bought another quart of whisky, got drunk, and killed another man. It cost the county $5000 more to send him again to the penitentiary. Once more the circuit court reversed the decision and sent it back on error for a new trial. The defendant asked for a change of venue, and the case was heard in Jefferson County. It cost Belmont

County approximately $8000 more to send the man finally to the penitentiary for life.

Of course, the distiller who made the whisky which, in turn, made the murderer, was not punished in any way. Neither was the saloonkeeper who sold the man the whisky.

The reader can see from this one incident how the profits on that bushel of corn went glimmering, and the other fourteen quarts are yet to be heard from.

However, it may be that one other quart out of that same bushel of corn has gotten in its work in Belmont County, for a few months ago the papers over there announced that the brother of the man who cost the county so much money as the result of drinking two quarts of whisky, purchased a quart of the same stuff, got drunk, and killed a man. Quite likely it will cost about the same amount by the time the case is finally disposed of.

In addition to all the expense, five families of the county have been deprived of their breadwinners, and the taxpayers of Belmont County are far from unanimous in a desire to turn any more of their corn into whisky.

There are two morals that might be deduced from the above transaction. First, the folly of selling whisky for beverage purposes; second, the folly of having an "easy" Governor who may be led to pardon a man out after he has, at an enormous cost, been landed behind the prison bars for the safety of the community. The Governor doubtless thought that, if he would give this prisoner his liberty, he would profit by his lessons; but he demonstrated to that neighborhood, and to the *whole wide world,* for that matter, that his place, and his only fit place, is behind prison walls. And then, again, it would indicate that his craze for whisky and murder runs in the family. I do not believe in the pardoning business, especially pardoning out *criminals* guilty of crimes like those pictured above.

GOOD NEWS FROM ARIZONA.

On Nov. 3 we voted Arizona dry by 3891 votes. But we had a hard fight to win, as the wets worked very hard, and they sent out a large amount of literature, judging by what I received myself through the mail. I am sorry to hear that the grand old State of Ohio went wet, as that is my home State, as I was born six miles east of Lima.

I had the privilege of visiting your factory at Medina in Sept., 1911, and will say I enjoyed the visit very much, as all the men seemed willing to answer any questions that I would ask them, and they all treated me very nicely.

Buckeye, Ariz., Nov. 17. ALBERT J. ROSS.

A "WET" EXPOSITION; SHOULD IT BE PATRONIZED?

Dear Mr. Root:—I am a stranger to you, but you are not to me. My father has taken your paper for twenty years, and my grandfather took it from its first publication. We like your paper very much, especially the Home talk.

As you seem interested in the temperance cause I thought a little "dry" talk would be of interest. San Francisco went wet six to one—a very nice place to invite our friends to the exposition next year, isn't it? I am telling my friends in the East not to come. A man who lived there said it is no uncommon thing to find dead bodies floating in San Francisco Bay.

I am a girl eighteen years old. My father keeps bees, and I am much interested in them; also in the prohibition cause.

Corning, Cal., Nov. 6. CAROLINE HUBERT.

Thanks for your suggestion, my good friend; but are not the temperance people somewhat at fault that California went so *very* wet? It is reported the drys tried to pass a law making it a penitentiary offense to purchase and drink California wines in one's own home. We, even in this fight, must be "wise as serpents and harmless as doves."

CIGARETTES, AND TOBACCO IN GENERAL; WHAT THE OHIO FARMER SAYS ABOUT IT.

We take pleasure in clipping the following from the *Ohio Farmer* of a recent date.

Government statistics show that during the year 1913 the people of the United States consumed cigarettes to the number of 14,530,486,200. This was an increase of 2,186,633,708 over the previous "banner year." Think of it! This is an average of 39,000,000 cigarettes each day, and the total value of all of these coffin-nails was $72,781,626. One authority has estimated that it must have been necessary for 1500 boys to fall victims to the devastating habit each day, in order to keep up this terrific demand. It is also observed by sociological workers and students of the general question that the taste for liquor in a mild form is inspired by constant smoking, and the habit is thus responsible for many of the most serious woes of society. Dr. Dennis, of the medical school of Cornell University, states that "the tendency to beer-drinking is greatly strengthened by cigarette-smoking, because this habit becomes almost constant, causing a dryness of the throat and fauces, and hence irritating the throat." Another effect of cigarette smoking, we are told, is that it lands more boys in the police and juvenile courts than all other habits combined. One city magistrate testifies that out of 300 boys brought before him, charged with various crimes, 295 were cigarette-smokers. While it may not be true to say that every boy who smokes cigarettes acquires criminal tendencies, it is true, beyond question, that every boy or immature man who indulges in the habit to any extent suffers certain physical impairments that lessen his value as a worker, either with his muscle or his brain; and he is placing a serious obstacle in the way of his success by continuing the habit. The records of Harvard University have been cited to the effect that while over 83 per cent of the students use tobacco, for over 50 years no tobacco-user has stood at the head of his class. Smoking in any form does not do the smoker any real good, although it may soothe him and furnish him a certain amount of amusement and indulge a taste that has been acquired. It is less injurious to mature men than to young men who are just getting their development; and the boy who wishes to make the most of his career should refrain from tobacco.

May the Lord be praised that we have at least *one* agricultural paper that dares to come out like the above, not only against cigarettes but against tobacco in general, especially while it is true that so many men occupying prominent positions continue to set a bad example before the boys growing up all around them.

Gleanings in Bee Culture



Vol. XLIII JANUARY 15, 1915 No. 2

The "New" Garden Magazine for 1915

Plans have been perfected for 1915 which will make the GARDEN MAGAZINE even more practical to the progressive amateur gardener than ever before. It may well be called the "new" GARDEN MAGAZINE. New plants, new flowers, new vegetables during 1915 will be brought before the notice of readers as quickly as the facts are available.

Special Features for 1915

Roberta of Roseberry Gardens

By Frances Duncan
The Author of "The Garden Doctor"

This is more than a mere romance hung around a garden. It is chock full of practical garden facts, dealing with the relationships of the nurseryman and the amateur who buys from a nursery.

The Garden Plan Every Month

The editors have secured the co-operation of competent authorities in garden design for the preparation of a series of what may be called typical layouts, one of which will be published in each number during the coming year, and will deal with plots varying in size from the city lot to several acres. Suggestive ideas will be given for the development of the property, shrubbery to be used, borders, etc.

In the Greenhouse

A series of timely, practical hints for the amateur who has a small greenhouse.

The Month's Reminder

Tells the amateur and beginner what to do and what pitfalls to avoid.

The War on Bugs

A new kind of spraying calendar which will cover in an entirely new way from a practical gardener's point of view, how to combat with pests and diseases in all parts of the garden.

The Fruit Garden, The Vegetable Garden

These subjects are treated from the home point of view. There is an essential difference between growing fruit for market and for one's own table. The Garden Magazine point of view is the home exclusively.



Picture Feature

With the new cover of The Garden Magazine, opportunity is given for plant portraits, presenting them in full color. Watch the cover each month for plant portraits of real interest.

In their proper season numbers will be prepared with special reference to the particular needs of the moment, i. e., "Planting on Paper," "Seed Sowing," "Spring Planting," and other planting specials.

The Garden Magazine . Regular price per Year $1.50
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VOL. XLIII. JANUARY 15, 1915 NO. 2

EDITORIALS

WHILE this issue is being read by our readers, the editor will be down in the Dismal Swamp looking after our bees. Possibly he will be disappointed in finding colonies have not made the progress we had hoped. What we find, however, will be given in our Feb. 1st issue.

"Many a Slip 'twixt the Cup and the Lip."

ONE or two letters from the vicinity of Norfolk, Va., indicate that the climate may prove to be somewhat disappointing to us, and that Hampton Roads Bay has been covered with ice at times. But where our bees are located is quite close to the ocean, some eight or nine miles from the coast, warmed by the Gulf Stream. Some of the colonies that we sent to Virginia were very weak, and we may lose some this winter. If so, our readers shall have the truth.

"The Development of the Apple from the Flower."

WE have for free distribution a folder entitled "The Development of the Apple from the Flower," by Prof. O. M. Osborne, Head of Horticultural Department, State Normal School, Lewiston, Idaho.

Under the sub-heads, "How the Honeybees Fertilize the Blossoms," "Why the Apple-blossom is Entirely Dependent on the Bee for its Fertilization," "How the Flowers and the Bees Co-operate for Each Other's Good," and "How Many Colonies of Bees are Needed for the Proper Development of an Orchard?" Prof. Osborne deals with every phase of the question, and shows conclusively that, without the bees, there will be no fruit, as the wind cannot pollenize the apple-blossoms.

We shall be glad to send these folders to individuals making application, for one cent to cover postage. Or we will send them for distribution postpaid in lots of a dozen or more through societies if the name of the society with its secretary and president is sent us together with the number that can be used.

Small Pocket Electric Lamp for Looking in at the Entrances of Indoor-wintered Colonies

DID you ever try any thing of this sort? They are far better than a lantern, because they enable you to shoot the light clear up between the frames where the bees are clustered. Whether bees are wintering well or otherwise in the cellar, their condition can be easily observed with a pencil of light such as one can get from these little lamps.

There has recently been put on the market a very convenient electric lantern that makes use of a standard dry cell, such as one can buy at the telephone offices or any automobile garage for 25 cents. While it is much larger and more bulky, it does not have to be used on the flash-light principle. Indeed, the current can be turned on and left on, because it is big enough to stand the load. These cost complete about two dollars. We are using one of these in our bee-cellars with much satisfaction.

A Carload of Beekeepers from Chicago to the National Convention at Denver, February 16, 17, and 18

THE editor of GLEANINGS expects to be present at the Denver convention, where he hopes to have the pleasure of meeting his friends and patrons. An effort has been made to make up a carload of beekeepers at Chicago and go in a body. The following letter from Secretary Williams will explain:

The meeting of the National Beekeepers' Association will be in Denver this year, Feb. 16, 17, 18. Arrangements are being made for the Eastern delegates and visitors to meet in Chicago on Sunday evening, and leave about 10 P. M. on a special tourist sleeper, to arrive at Denver Tuesday morning at 7:00 in good time for the first session. This will

insure a splendid trip, and give opportunities to get acquainted and discuss matters while *en route*. The sleeper charges will be about $3.00 in addition to the regular fare. Those intending to go from the south and west of Chicago will have the opportunity of joining the party if they will give me notice in time. All who are intending to go should write me and get full information, and thus insure ample accommodations.

Redkey, Ind. GEO. W. WILLIAMS, Sec.

It is our intention to join that bunch of beekeepers.

Our Cover Picture

As mentioned on page 62 the picture on the cover shows a part of our Blakeslee yard in the Holtermann winter cases. We have twenty-five of these cases at this yard with four colonies in each and one case at the home yard, so there are one hundred and four colonies in all that we are wintering in this way.

For alighting-boards, we used a lot of old covers that were not worth much to form a runway from the ground up to the entrance. We would not recommend using a good cover in this way.

As shown in the photograph there are some dead bees in the snow about each entrance. This is true in every case, although before some of the entrances there were more bees. This brings up the question of whether it pays to shade the front of the hive or case to prevent the bright sun from luring the bees out on days when it is too cold for them to fly. While the matter has not been settled definitely the consensus of opinion seems to indicate that it is impossible to prevent a good many of the older bees at least from coming out in the sunshine and becoming chilled in the snow. Sometimes boards may be leaned up against the front to shade the entrance; but too often these serve to confuse the bees that do come out so that it is doubtful whether they are of much advantage. There are fewer bees in the snow about the entrances in the cases than there are in front of individual colonies separately packed.

"Buy More Cotton."

THIS is the slogan that has been going through the country to help out our friends and neighbors in the South who are loaded down with great quantities of cotton with no market for it. A great many people benevolently inclined have been buying it up, and this is certainly a move in the right direction. In this connection our friend H. G. Quirin, the queen-breeder of Bellevue, O., has got hold of an idea that may be worth developing. He writes:

The A. I. Root Co.:—We wish to ask whether you folks have ever tried cotton for cushions and winter packing for bees. We are thinking quite seriously of making sufficient cushions for all our outyards, and also our home yard, from cotton; but as we have never tried it, and know of no one who has tried it to any extent for a term of years, we thought it well to make inquiry in regard to its use.

Our brother put up five colonies last winter with about a pound cushion over each, and he speaks very highly of it; but last winter was rather mild, and the bees might have wintered without any cushion at all; and as one swallow does not make a summer we thought we would make further investigation in regard to the use of cotton as packing material for bees. We can get cotton by the bale for about 3 cts. per pound. Of course it is not of the very highest grade, but it would not be necessary to have the best. One hundred cotton cushions would be but half as bulky as that many chaff cushions. This would be quite an item; but one of their main advantage would be that they are perfectly clean. With chaff there is more or less dirt and dust sifting through the burlap.

Bellevue, Ohio, Dec. 21. H. G. QUIRIN.

There will never be a better opportunity to lay in a stock of cotton-packed cushions for bees than right now. During the winter months beekeepers and their womenfolks can make up a good supply. A thin cotton-packed cushion, if placed under a telescope cover, will make a wonderful difference in the amount of brood that one can rear in the spring during the early chilly days just after bees are taken out of the cellar. Our correspondent's suggestion is worth trying.

Not Paralysis but Poison, Perhaps

MAJOR SHALLARD'S article, on page 995 of the December 15 issue, wherein he discusses the symptoms for what he calls the "disappearing disease," raises the question whether he hasn't had his bees poisoned. It may be that the bees were poisoned at their watering-place. Haven't we read in some place that our Australian friends sometimes poison a watering-place to get rid of the rabbit pest, fencing against stock with a coarse mesh, but not against rabbits—and bees? Or it may be there is some flower in that locality yielding a poisonous nectar. Why not, when we have the poison plants on the range, which, though appetizing to stock, are fatal to bees? Our own government has taken cognizance of this fact, and is trying to work out a system to protect the grazers on the forest reserve.

There is a disease known as paralysis, and this has come under observation in different localities; but we never knew bees to go to the field when once affected with ordinary bee paralysis. In all cases of paralysis we have seen, the bees got no further than the edge of the hive-stand, when they dropped on the ground and died within a foot of the entrance to the hive.

The name, "disappearing disease," is suggestive of some other cause than that suggested by Major Shallard.

The Montreal Bee Convention; the Proceedings in French

We are indebted to the secretary of the Quebec Apicultural Society, Mr. O. A. Comiré, for a complete copy of the minutes of the deliberations of that association at its last meeting, which took place in Montreal Nov. 11 and 12. Only a lack of space prevents our giving it in full in our columns; but we will say it shows plainly the lively interest in apiculture on the part of our neighbors on the north.

Among many prominent beekeepers there we note Mr. C. P. Dadant, editor of the *American Bee Journal,* who gave a detailed account of his recent trip to Europe. As this convention was conducted in the French language it will be seen that Mr. Dadant had a great advantage, as that is his mother tongue.

Another man of prominence there was Mr. F. W. Sladen, Chief Entomologist of the Experimental Farm, Ottawa, who gave an interesting address on queen-rearing.

The Canadian Secretary of Agriculture was also present, who received the thanks of the society for his personal encouragement and practical assistance.

To further the work of the society the Canadian parliament has been requested to grant a little financial aid.

It is a source of pleasure to us to note the activity displayed by our Quebec beekeeping brethren in their organic capacity. "One for all, all for one," seems to be their slogan.

Prof. H. A. Surface for Pennsylvania Secretary of Agriculture; the Right Man for the Place

We are glad to announce, especially to our readers of the old Keystone State, that the friends of Prof. H. A. Surface are keenly interested in his appointment as Secretary of Agriculture. Prof. Surface now holds the position of Economic Zoologist; and those who know him best believe, and justly so, that there is not a man in the State nor in the United States, for that matter, who is better fitted and more able for the position. As a scientist he ranks among the first in the country, and he is a recognized authority on all nature-studies.

This particular appointment is the most important one to be made by Governor Brumbaugh, as it involves the agricultural interests of the State, and any thing that promotes the interests of the agriculturists is for the welfare of every citizen.

Our readers should be keenly interested in securing Prof. Surface's appointment as Secretary of Agriculture, because he stands for the best interests of beekeepers. It was largely through his influence and untiring efforts two years ago that the State secured one of the best apiary-inspection laws in the United States. His appointment to the higher position would have a strong bearing on securing the much-needed funds for efficiently carrying on the inspection work. As president of the Pennsylvania State Beekeepers' Association he is in close touch with the interests of the beekeepers.

What is true of his relation to beekeeping is doubly true of his interest in fruit-growing and agriculture in general. A man who can take a poor worn-out piece of land worth $30 or $40 per acre and make it yield marvelous crops of fruit and field products so that it is worth more than ten times that much within a few years, deserves more than passing notice. Having charge of the orchard work of the State he is well known to orchardists through his untiring efforts in their behalf.

To place Prof. Surface in the high position of Secretary of Agriculture will mean to broaden his field of influence and usefulness. He is a man who has clearly proven his unselfish interest in the welfare of his fellow-citizens, and now this is their chance to reciprocate, at least in a measure. He is pre-eminently the right man for the place, and we trust that his thousands of friends will lose no time in getting back of his appointment.

Start a campaign in his behalf at once in your community. Get a letter off at once to Gov. Martin G. Brumbaugh, Philadelphia, Pa., urging the appointment of Prof. Surface as Secretary of Agriculture. Bring it before your grange and farmers' meetings also. Delay may mean loss to your own best interests.

The Kentucky State Beekeepers' Convention

On Jan. 5 we had the pleasure of attending the meeting of the Kentucky State Beekeepers' Association, held in the Assembly room of the Experiment Station, Lexington. Professor H. Garman, Entomologist and Botanist of the Station and secretary of the association, was present, and a live wire he is. He has been with the university for 24 years, and during that time has done some valuable work for Kentucky. He is a friend of sweet clover, and believes it has a great future in his State.

The meeting was called to order at ten o'clock, when we listened to an address by President Henry S. Barker, formerly judge of the Supreme Court of Kentucky. While he has not, perhaps, had the training that a college president is usually supposed to have, he is a practical business man as well as a man of affairs; and we understand that the institution has prospered under his administration. In his address of welcome, he paid a glowing tribute to Kentucky, its resources, its products, and its future. He is greatly interested in every thing that pertains to making two blades of grass grow where only one grew before. He is a lover of the farm and of the soil, and of its possibilities; and last, but not least, he believes there is a great future for the honeybee in Kentucky now that sweet clover has taken such a foothold in that State. We shall refer to this further on.

Other addresses were given by the editor of GLEANINGS; by Attorney Richard P. Dietzman, of Louisville, on the laws relating to bees; by H. C. Clemons, of Boyd, Ky., on the Kentucky inspection law, and by C. F. Stiles on beekeeping in Mississippi. In the discussion that took place on the bee-inspection law of Kentucky, it appeared that the law was unconstitutional, and therefore it was without effect. While it is only a county law, an effort will be made to get it re-enacted. The beekeepers would much prefer to have a State-wide law, but the legislature absolutely will not provide the necessary appropriation for such a law. Foul brood is making some little headway in the State, and there is urgent need of protection. A committee was appointed to present some sort of bill for the next general assembly at its coming session, and it is hoped something can be done.

Wintering in Big Quadruple Winter Cases; Sealed Covers versus Absorbents

ON page 2 of our last issue we gave a preliminary report of how the bees were wintering in the large quadruple winter cases. We have made another examination to-day, Jan. 9, going over a large number of colonies, and we find that, almost without exception, the bees under the glass covers are showing up a little nicer and brighter than those under wired screens with absorbing cushions above. In the case of the former the bees are well up toward the top. In the case of the latter they are clustered much closer, as if they were not as warm and comfortable as their neighbors in the other side of the case under glass covers. While this showing is by no means conclusive, it makes us feel that, for the climate of Medina at least, a plain board laid on top of the brood-nest, with a bee-space under it, making a sort of semi-sealed cover, is better than a cushion held up by a Hill device or any thing that will make a bee-space under it. Glass covers or the board covers are not sealed; but they shut off the escape of moisture and hot air a little more, apparently, than the absorbing cushions that let both heat and moisture ascend up into them. Other colonies in the same yard are in single, double-walled, or old-style chaff hives. Bees in these do not look quite as well as those under glass in big winter cases. The difference, however, is not very great. We have also a number of colonies in single-walled hives alongside of the others. While these colonies are looking well, they show quite a sprinkling of dead bees in front of them. It would look at this time as if the shrinkage of the clusters, numerically considered, will be much greater in single-walled hives than where protection is afforded. This,of course, is to be expected. With reasonable protection it looks as if there would be good wintering this year.

The Wonderful Development of Sweet Clover in Kentucky; a Truth that is More Wonderful than Fiction

THIS plant is making great progress in Kentucky, and already sweet-clover seed, both yellow and white, is being shipped out of the State to all parts of this country in carlots. The amazing thing is that all the territory in three counties—Pendleton, Bracken, and Robertson—is devoted to the growing of sweet-clover pasturage and sweet-clover seed. In fact, we were reliably informed by E. E. Barton, of the Bokhara Seed Co., and by others also, that these counties grow almost nothing else. It is making rapid headway in other counties. So profitable has become the growing of this legume that it has crowded out all other crops, even tobacco. Now, tobacco (where it can be grown) is generally considered to be a profitable crop; but it appears that sweet clover on these Kentucky hills gives even larger returns to the farmer. Just suggest for a moment to any one of these farmers that the plant is a weed and you will find yourself bumping up against a bees' nest at once.

In a few years, comparatively, the growing of sweet clover will be one of the main agricultural industries of Kentucky. It is not only profitable for the growing of seed,

which brings good prices, but cattle that are sleek and fat are pastured on it during the entire season.

Sweet clover is a *continuous* bloomer. Beginning along about the first of June and July with the yellow, which is followed by the white, there is a continuous supply of nectar clear along till the fall. It goes without saying, that the three counties mentioned—Pendleton, Bracken, and Robertson—where it is grown almost exclusively, make a fine bee country. Indeed, we were informed that in one of the counties there are 4000 colonies.

A good part of Kentucky is rolling land, consisting of knobs, hills, and some mountainous country. The limestone rock sticks out of the sides of the hills.

It took the farmers of the State some little time to realize that there is money in sweet clover. But they are not so slow to catch on now; and at the present rate of increase Kentucky will produce more sweet-clover honey than any other State in the Union; and that will be going some, because some of the western States are now producing a large amount of it—carloads and carloads of it. Kentucky will also be a land that will produce large quantities of meat and sole leather—two commodities to-day that are commanding high prices.

Another thing sweet clover is doing is to renovate the soil on some of those farms. Professor Garman, the Botanist and Entomologist, was somewhat skeptical about this at first. He was also rather unfavorably impressed because he could not get his stock to take hold of it; but he says there is no use in denying that the cattle where they are educated to it were thriving on it, and that it is proving to be a great soil-restorer.

We learned of one particular instance of one farmer whose land gradually went down until he reached almost the starvation point. He found there was a tendency on the part of sweet clover to grow on the land; but as he was opposed to the "weed" he kept it well cut down. He was disgusted, and finally moved to town, leaving the farm to take care of itself. In the mean time sweet clover overran the whole place. The neighbors began to tell him that his farm would grow crops as before if he would come back and cultivate it. He did so, and began to gather the seed from the "weed," as it had a market value. At the same time he began to grow other crops, for the farm was completely restored. That farmer is now one of the most enthusiastic sweet-clover men in Kentucky. This is only one of other instances of a like nature.

Such a man as Alva Agee, of the *National Stockman*, and one of the professors in the experiment station of Pennsylvania, and Mr. F. E. Dawley, of the experiment station in New York, both speak very highly of the plant as a soil-restorer. Yet in spite of all this testimony—in spite of the fact that it is being grown, hundreds and hundreds of acres of it in Kansas and Oklahoma and many other of the western States, we find that some old fogies and even one college professor still call sweet clover a noxious weed of no earthly use to any man. But there is no argument so strong as facts. When some of those who formerly opposed sweet clover are now finding that this same plant is pouring money into their pockets they may well "stop, look, and listen," for to see is to be convinced.

So delighted were we with what we learned about sweet clover in Kentucky that we have decided to drive down into the districts next summer to see the hogs and cattle and bees that are living and thriving on this so-called "noxious weed."

We omitted to state that the seed-gathering and nectar-gathering on the part of the bees continues throughout the season. The dry seed-pods and stalks are gathered while the bees are at work on the blossoms above. In the mean time the cattle and pigs run promiscuously through this luxuriant growth, furnishing milk, butter, and meat as well as sole leather. "Butter and honey shall he eat," and the three counties of Pendleton, Bracken, and Robertson are furnishing both, and then some. The truth is more wonderful than fiction; and when we go down into that country next summer we shall be equipped with cameras, and let the pictures speak for themselves.

The Behavior of a Cluster of Bees in Midwinter, as Observed by the Editor of Gleanings at Medina

In our issue for Nov. 15, page 789, we gave a review of Bulletin 93 on the subject of the temperature of the honey-cluster in winter, by Dr. E. F. Phillips and Mr. Geo. S. Demuth. In this it was shown that a cluster of bees in winter is not necessarily as still as death, although examination over the top of the frames might give that impression. It was also shown that the cluster has the power, when the outside temperature drops to a certain limit, to raise the temperature inside by means of bodily exercise, consisting of active movements on the part of the bees tugging at each other, shaking their bodies, and actually fanning with their wings. These showings were decidedly interesting—so much so that we

decided to construct a special hive with glass sides, put bees therein, and see for ourselves. We accordingly constructed a double-walled hive with packing at front and rear, and at the top, and space in the hive proper to receive one comb filled with stores, and wide enough to take in a fair cluster of bees. Indeed, there was room enough to take in two frames; but in order that we might see the bees on both sides we put in only one comb. The sides of this hive to permit observation could not of course be packed and paneled with double-walled wood sides. We used instead three thicknesses of glass spaced 3/8 inch apart, making two dead-air spaces. Dr. Phillips and Mr. Demuth, in their experiments, used only two thicknesses and one air space; but we decided to go a little further as our own climate is relatively colder.

The hive was duly installed and set on a support outdoors about ten inches in front of a window of the editorial sanctum.

Every thing was going nicely until we had a day of bright sunshine; and before we knew it old Sol shining through the glass sides made the interior of our experimental hive about like a hot-house. The cluster was immediately broken, of course, and the bees busied themselves by sliding up and down the glass inside of the hive, trying to escape, and some flew out at the entrance, notwithstanding the outside temperature was down to freezing. We had not anticipated this hot-house possibility, so we immediately had some wooden panels made to cover the glass, one for each side. Temporarily some folds of burlap were thrown over the hive to shut out the sun.

Several days have elapsed, and the side next to the office window has the panel removed except during the hours when bright sunshine might warm up the hive through the glass. But in the few days we have had for observation we have so far observed exactly what Dr. Phillips and Mr. Demuth have reported. When the temperature in the hive drops down to below 40 the cluster will gradually draw up closer, and the outside ring of bees between the comb and glass will be very quiet, exhibiting no movement but breathing, as shown by a slight distension and contraction of the abdomen. When the temperature gets low enough outside of the cluster, the inside of the cluster will be honeycombed; that is to say there will be holes or cavities scattered all through. Inside of these little recesses there will be here and there a bee fanning with its wings. But the movement of the wings in the cluster is very different from the movement of the wings in front of the entrance of the hive on a hot day to cause currents of air to pass in and out of the hive for ventilation. The wings in the cluster assume more of a tremulous movement, and apparently they move in such a way as not to cause any appreciable air-current.

Other bees will be engaged in pulling at each other. Still others will exhibit the same side movement of the bodies that we find in case of young bees that have just come home with their load of honey or pollen in summer. Throughout the inside of the cluster there will be a general movement, crawling in and out, even the queen participating in the "exercise." During all this time the outside ring of bees is perfectly motionless with their heads jammed in close together, apparently to shut out any escape of air.

We cannot quite understand *why* the outside bees should be sticking their heads into the cluster. If they breathed through the mouth, as do ordinary animals, we might surmise that it was for the purpose of giving their hot breath to the inside temperature of the cluster. But that is not the way bees breathe, but through little spiracles in the abdomen or thorax.

Another thing we cannot quite understand now is whether these movements as described produce the same effect on bees that they do on animals. In our case at least exercise stimulates the heart and soon a warm glow pervades the body. In view of the fact that the temperature of the cluster rises when this gymnastic work begins, it is to be presumed that the bees are not greatly different from their owners.

Later.—Dr. Phillips, to whom we sent a proof of the above, sends the following:

I scarcely need say that Mr. Demuth and I are delighted to have you confirm our statements, which may have seemed a little radical to those who had not seen what we did.

There are only one or two points to which I would call attention. In the paragraph concerning the position of the bees in the shell (see Bulletin No. 93, page 15, first five lines) we think that the close proximity of the thoraces and the interlacing of the thoracic hairs are important.

The next paragraph contains a misconception. Exercise in man produces warmth by the muscular activity, and the increased activity of the heart is the result of this muscular activity, not the cause of the warmth. The heat arises from the chemical changes in the muscles. This is true in both man and bees, while in man the heat-regulatory functions prevent a drop in temperature and bees have no such regulation.

Going back to the location of your thermometer, you are not measuring the temperature of the air immediately surrounding the bees. In Bulletin No. 93, page 15, top of page, see what we say concerning variation within the hive. Because of this variation your statement of the reaction when the temperature of the hive drops to below 40 degrees F. is somewhat misleading. The clustering comes, according to our observations, when the bees themselves and the air *immediately* surrounding them reaches 57 degrees F. The temperature at the bottom board may be considerably lower.

E. F. PHILLIPS,
In Charge Bee Culture Observations.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



THE chief thing in putting labels on glass, according to an item in *B.-Vater*, is to brush the paste, not on the label, but on the glass.

INBREEDING, if continued for a time, is generally believed to result in deterioration. But Dr. Kramer has shown that it merely emphasizes characteristics existing. Weak stock inbred will deteriorate, strong stock will not. According to that the great thing is to breed from the best without worrying about danger from inbreeding.

W. HERROD says, *British Bee Journal*, 405, that extracting-combs put away wet will not be attacked by bee-moth. "In the center of a pile of supers containing wet combs a brood-chamber full of dry combs was stored. These were entirely eaten up by wax-moths, which did not touch the ones immediately above or below." [This is interesting if true.—ED.]

H. CHRISTENSEN asks if my Italians seal sections as white as hybrids did. I have not noted any difference. With almost any kind of bees I think there will be an occasional colony that will have watery sealing, also that will varnish the sealing with propolis; but when certain fall plants are yielding (and I'm not sure what they are), any and all colonies will do this varnishing.

THE annual consumption of an average colony is thus given in *Illustrierte Monatsblaetter:* Honey, 40 kilograms (88 lbs.); pollen, 20 kg. (44 lbs.); water, 20 qts. Others have estimated the honey as high as 200 pounds. [While 200 lbs. is higher than the average, 80 lbs. is undoubtedly low. Our experience in feeding to build up colonies seems to favor an intermediate figure. —ED.]

DR. BRUENNICH reports in *Schweiz. Bztg.* a colony which had not swarmed in eleven years. The original queen, which he calls S (from which many non-swarming queens were reared) lived nearly four years, the last ten months of her life having with her a successor, S'. S' lived more than four years; her successor, S", being with her the last three months of her life. S" reared a successor when a few days more than four years old. Excellent work was done by the colony all the while. No wonder the Swiss believe in breeding for longevity and toward non-swarming.

"IF YOU use full sheets of foundation in sections it really pays to fasten it with melted wax an inch or so from the top on each side, to prevent the tendency of the sheets swinging over when the bees cluster on one side, so that the comb is attached to the separator," p. 954. Formerly I had trouble that way, but not a single case for many a year. My remedy is much better than melted wax. Simply have strong colonies so the super will be crowded with bees, and then never will "the bees cluster on one side." [Your remedy is all right; but not all colonies will be up to the required strength. You would say, "Do not run them for comb honey, then." Perhaps you would be wise.—ED.]

F. A. HANNEMANN, inventor of the zinc perforated queen-excluder, was born in Wartenberg, Germany, May 25, 1819. He came to Brazil, South America, in 1853, bringing with him two colonies of bees, which he increased the first summer to 28. He sold five of these, and increased the remaining 23 the next summer to 250. July 24, 1912, he died near Rio Pardo, Brazil. [The scheme of making holes big enough to let workers pass, and not queens or drones, is not one of the minor inventions in beedom. It is evident that Hannemann was not aware of the importance of his invention at the time.—ED.]

PLEASE, Mr. Editor, don't say a V starter in a section is a satisfactory compromise, p. 954. It's false economy. The bees will fill out with drone-comb; and unless you use excluders the queen will go up and fill out your sections with drone-brood. [We grant that it is false economy to use V-shaped starters; also false economy to use narrow starters an inch deep at the top. But there are those who believe that full sheets of foundation cause too much midrib in the comb honey, and a tendency to revive the so-called manufactured comb-honey canard of years ago. Said a prominent honey-buyer two weeks ago, "I believe that all comb honey should be produced with narrow starters because full sheets make too much midrib in the honey." We ventured the suggestion that he could not tell, by eating, comb honey made on full sheets of foundation from that on narrow starters; but he thought he could. Personally we do not believe there is any appreciable difference in the midrib—certainly none that the public will recognize. But there are those who believe that it is unwise to use full sheets, for the reason stated, and hence our suggestion in the way of a compromise to use a V-shaped starter.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



That is certainly a "new discovery" or method of making chaff division-boards, fully described on pages 833, 834, Nov. 1, and well worthy of following.

* * *

Many colonies in this section have gone into winter quarters much lighter in bees than usual, and it will not be surprising if there is considerable loss in wintering. Such results are apt to follow a poor season as well as foretell a good one.

* * *

Wesley Foster, page 751, Oct. 1, says the Government bulletin on sweet clover should be in the hands of every person who wants to sow the seed. Quite right you are, my brother; and you might have added that it ought to be in the hands of every person whose land is adapted to its growth.

* * *

Our friend Arthur C. Miller, page 842, Nov. 1, quotes Allen Latham as saying that "good clean spit is the best thing for diluting royal jelly." This would seem to exclude those who use tobacco from this method of reducing royal jelly to a more fluid condition. I am sorry for them.

* * *

The experiments of the Department of Agriculture at Washington begin to throw a good deal of light on the subject of wintering. The discovery that has interested me most has been that, the lower the temperature outside the cluster, the warmer it is likely to be inside the cluster. This may account for the brood we often find in strong colonies in February, our coldest month.

* * *

Mr. Ames, in the Nov. 15th issue, gives a nicely illustrated article on wintering bees in a four-hive case with permanent bottom-board, somewhat after the plan of Holtermann. Those four-hive cases certainly look good, and I am sure they can do their part in carrying a colony through our cold winters; but I doubt if they are much better than single hives well packed. I made a case three years ago that would take twelve single-walled hives with their entrances at four points of the compass. They are well packed, and wintered well; but I fail to see that they do any better than in well-packed single hives.

* * *

Page 816, Oct. 15, in footnote to Mr. J. J. Wilder's article, you appear, Mr. Editor, to take issue with him, contending that, if a ten-frame hive is the best size in one location, it must be in another. I honestly believe you are mistaken. Many of Mr. Wilder's yards are quite peculiar. In those places where the partridge pea is his chief source of surplus, the bees do not breed up into strong colonies for the reason that, while working on this source, they gather very little pollen, but they gather the nectar from glands from the base of the leaf-stalk. As a result, the amount of brood in most of these hives is quite limited, and colonies rather small. Of course a small brood-chamber will force such colonies into supers much better than a ten or twelve frame hive. I can well believe his statement that eight half-depth Langstroth frames are preferable to full-depth frames, as such would be ample for the brood, and it would force the bees to store most of their surplus above in the super. [Your points are well taken if the conditions are as you state.—Ed.]

* * *

There seems to be some mistake as to the amount of sugar syrup required to draw out a set of frames of foundation. The editor says that the foreman of the yards at Medina says, page 794, Oct. 15, that a colony drew out six combs of comb foundation one-half on one quart of sugar syrup, half and half, and that he thought they would complete the job on another quart. As a quart of syrup of this quality would weigh about 2 lbs. 10 oz., two quarts would contain 2 lbs. 10 oz. of sugar. If this was enough to produce six combs complete, then it would require 7 ounces per comb, or 3 lbs. 8 oz. of sugar to fill an eight-frame hive. Eight frames of drawn comb would weigh somewhere from a pound to a pound and a half of wax more than the foundation used to fill the frames. Some have thought it takes 25 lbs. of honey to produce a pound of wax; some have thought 20 lbs. Others have estimated that it takes from 10 to 16 lbs., while these Medina bees are able to produce a pound or a pound and a half of wax on 3½ lbs. of sugar. Well, I am not going to say they didn't do it, or that other bees can not do it while you are feeding that amount of sugar syrup. They will sometimes do it without any feeding at all; but I am a little skeptical about their doing it from the syrup fed them alone. Were they not getting more or less from the fields at the same time? [See what R. F. Holtermann has to say on this subject, p. 13, last issue.—Ed.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



In the editorial columns there appeared a word of caution to would-be inventors of new hives and fixtures. The warning is doubtless timely; but all we now have we owe to the dreams of enthusiasts and the experiments of the dreamers. There are many things yet to come in the advancement of our industry, and it would be far better to disappoint than to discourage the good that comes from them.

* * *

If we are all successful in producing a crop of honey each year, we should fail from overproduction. Did you ever stop to consider what would happen if it were possible to pay every laborer in the United States ten dollars per day for thirty days to cease labor? The nation would starve to death. If we fail to get a crop, there is always some other place to fill the place we leave. If some other place fails we shall ofttimes be benefited by their failure. So the world goes. Production is based on ups and downs, in a give-and-take manner.

* * *

With the president of our State Association, as well as a majority of the executive board in the North, a new era has begun in our State Association. I am of the opinion it will result in a much more healthy condition of affairs. The fact that it will eliminate the petty politics which has been far too prevalent in the South is worthy of consideration. In Prof. Willis Lynch, Harry K. Hill, and J. G. Gilstrap we have a strong trio to govern the body. That Prof. Lynch as president will be the strongest and most efficient man for the place that we have had in recent years is well known. He is a scholar, gentleman, and a man of wide experience and travel, with a most pleasing personality and kindly disposition, and enjoys the confidence of all. M. H. Mendleson deserves thanks for his unrelenting fight for the North.

* * *

Wesley Foster speaks of the prohibition amendment carrying in Colorado. Well, it did not carry in California by a great many thousand. I hardly thought it would, on account of the tremendous influence the grape industry gave the liquor men in fighting the amendment. If it had been only a question of killing the saloon alone it would have carried handsomely. Now the grapemen are fearing the result of another election in 1916, and are asking that the saloon men get out from behind them. I could stand it all pretty well as to that part; but when San Francisco voted three to one to defeat the red-light abatement law my shame for that city was complete. The loyal support of the rest of the State, however, overcame the result in San Francisco. San Diego voted three to one for the law, thanks to her good people. We are inviting the world to the two great fairs that are to be held at these cities. Our sons and daughters are invited to come to a city whose moral test has just been given. Shame, for the showing of San Francisco!

* * *

A movement has been started in San Francisco to divide the State into two parts —the southern part to include the counties of Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, San Diego, and Imperial. A division has been talked of before in the South, due to the impression that the southern half of the State is paying an unjust proportion of the State tax. This time the movement has started in the North, due to great dissatisfaction on moral lines. The North (principally San Francisco) is angry because the southern half voted the red-light extinguisher amendment to the constitution on them, besides giving them an uncomfortable feeling on the prohibition question. In the South there is a feeling of as deep dissatisfaction over the showing of the North on these lines. So in common they have a feeling of desiring to eliminate each other. If the question should be submitted to a referendum I should not be the least surprised to see the separation come about. Should it come about it would leave almost the entire sage-producing section in what would be known as Southern California, while the only region producing alfalfa honey would be in Imperial County. The South would be, in my opinion, the gainer in this line, for practically all sage honey would come from the southern section, and would soon be known to be the only sage-producing State. With the grape industry eliminated there is no doubt that Southern California would be a dry State.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



Rain, rain, rain, and slush. This is a very general condition in Texas this December. Good fall and winter rains mean good honey crops the following year, however.

* * *

Inventory time was here at the close of last year. I wonder how many beekeepers have taken stock of their possessions; and how many are going to keep books during 1915, so that they may be enabled to "know where they are" any time during the year.

* * *

COMB HONEY ON HIVES IN WINTER.

The bad roads, caused by the long-continued rainy weather, have prevented hauling home a large part of our comb-honey crop. As a consequence, something over 35,000 pounds of choice white comb honey is still on the hives. As many as three and four supers are tiered up on many colonies. As we have not had much very cold weather, none of it has even begun to granulate; and as there is always a great deal of well-sealed comb honey that does not granulate at all during some winters, we hope that this may become true with all of it this year. As soon as the roads permit, most of the honey will be hauled in and put in "warm storage" however. This should prove an experiment of some value to the bulk-comb-honey producers who sometimes have difficulty in disposing of all their honey in the fall.

* * *

THAT BEE-BOTANY DEPARTMENT.

I am one, Mr. Editor, who would favor such a department in GLEANINGS. It is very essential that we be better acquainted with the flowers that yield the nectar for our honey crops. It is very important that we know the honey-yielders so that we can locate our bees properly and to the best advantage. Even outside of that, most of us do not live merely to make money out of every thing that we do; but for those of us who are after more knowledge of those things that have to do with our chosen pursuit, such a department could be made of considerable interest. I worked for years on the collection of Texas honey-yielding plants, and I believe I have about as large a private collection of the honey flora of one State as anybody. But I have not had the time nor have I been able to collect all the honey and pollen yielding plants that grow in Texas which help more or less in the yield of honey, pollen, or both. It is interesting indeed to study nature's flowers, and doubly interesting if we consider the value attached to these flowers from an apicultural standpoint.

* * *

WHEN TO FEED THE BEES.

This question is asked very often indeed. There seems to be no end to it, in spite of the fact that it is so often discussed in the bee-journals. I have always been of the opinion that bees should be so managed as not to require feeding at all. However, there are times during a season when the colonies may become so short of stores that it becomes absolutely necessary to give them such assistance as they may need in order to tide them over. But outside of this I do not believe that it is as profitable to feed the colonies either in the fall or in the spring as it is to leave plenty of honey on the hives in the fall. We have found that colonies with plenty of stores in the hives during the winter and throughout the following spring always build up to rousing strength with very little attention, and are the colonies that gather the most honey during the honey-flows, especially the early flows. We have made it a practice, therefore, for many years, not to take honey from colonies too closely, but to leave really more honey than they may need. The result has been that we are enabled to get just so much better yields from our colonies than those beekeepers who believe in "robbing close," and then depending upon feeding sugar syrup in case the colonies need it. The trouble about such a plan is that too often the feeding is either neglected altogether, or not properly done, or not enough is fed for best results. Another objection that we have toward wholesale feeding is that it wears the bees out unnecessarily when they are needed the most. This is especially true in the spring, when every bee is worth several bees later in the season. Even in the fall it is a good plan to disturb the bees as little as possible. If we feed them, the wearing-out effect it has on the bees begins to show very early the following spring in that they die much earlier, and at a time when we ought to have them to aid in the early brood-rearing operations. The better way is to leave plenty of stores on the hives in the fall; and this will not only save feeding and the trouble connected with it, but will give the best results in the way of stronger colonies and larger honey-yields.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



QUESTIONS ON QUEEN-REARING.

A correspondent wishes me to answer these questions:

"If on the second day after a colony has been made queenless we take away all the brood and give the bees a frame containing only eggs from our best queen-breeder, why is it that quite a share of those eggs will disappear instead of all hatching into larvæ, as would have been the case had there been brood in all stages left?"

This is a question I have often tried to solve, but have never done so satisfactorily. Of course a part of the eggs are removed to give place to the larger queen-cells. I might as well say that I do not know why more than those necessary are removed unless the bees are thrown into an abnormal condition by manipulation. I have often noticed that eggs do vanish, as by magic, under certain conditions where a colony is made queenless, and especially from a nucleus under the strenuous circumstances of trying to see how many queens can be gotten from it in a season. Where we allow the young mated queen to stay in her nucleus till the first 100 or more eggs have hatched, before taking her away for shipping, every egg will be hatched; but if she is taken away when she has been laying only from twelve to thirty-six hours the larger part will disappear. And if this early withdrawal is continued the nucleus will become so weak after a month or two that it will succumb to robbers when a time of scarcity occurs. Who among the readers can give us further light?

He next asks, "What becomes of the eggs? Do the bees eat them?" I would not say that the bees always eat these missing eggs; for I am aware that where bees are drummed or shaken into a box so as to make a new colony of the drummed swarm, as we used to do in what was termed "artificial swarming," thirty to forty years ago, many eggs would be found on the board under the box three or four hours later if the queen was laying at her maximum at the time the artificial swarm was made. But I have repeatedly seen bees eating the eggs as they came from a queen when she was suddenly disturbed so that she drew her abdomen from the cell.

He now asks, "If the bees eat the eggs which are missing, are they used in the preparation of the royal jelly? If they are, would the eggs of a black or hybrid queen affect the coloring of the young queens reared from golden Italian larvæ?"

Because bees eat eggs, it does not necessarily follow that they enter into the food given the young queen larvæ, for, according to my observations, hundreds and thousands of eggs are eaten by the bees when they have no disposition to rear queens. In times of great scarcity the cells will be cleared of eggs by the thousand, and all ideas of brood-rearing given up; and if fears of the existence of the colony are entertained, even the larvæ will be eaten except those about to change to the pupa form, and these will be sucked dry in order that the existence of the colony may be maintained. And even if they did enter into the royal jelly they could only form so small a part of the whole that little or no chance for coloring could be given, even were there any grain of truth in the theory that food of any kind has aught to do with the color of the insect to which it is fed while the insect is in the larval form. From many years of observation I have failed to find that black or hybrid nurses, or eggs or larvæ from a dark queen, in a hive from which Italian queens are being reared, have any thing to do with the coloring of such queens.

The last question, "What is the shortest time after hatching, the weather being favorable, before the young queen leaves for fertilization?"

Five days after maturity is the least number I ever knew to elapse. But in natural swarming, or under most circumstances where the bees have their own way, and especially where the weather is favorable and the flow of nectar good, not one queen out of ten is allowed to emerge from its cell at maturity, for under such circumstances all but the first of the young queens are held by the bees in their cells till a decision is made as to future swarming. Hundreds are held from one to five days in their cells by the worker bees, after they would have gnawed off the capping to their cell, and come out, could they have had their own way. Queens are more often held in their cells in this way than is generally supposed. In one instance I opened a hive and found a young queen piping away vehemently. After looking the hive over I found a queen-cell with a queen in it which I had overlooked when cutting out cells previously. As there were plenty of bees in this hive I took the frame having this cell upon it, bees and all, and formed a nucleus. The queen made a successful flight the next day, and in two days more, or three days in all, she was laying worker eggs.

GENERAL CORRESPONDENCE

EIGHT-FOOT FENCES AROUND THE BEE-YARDS

BY R. F. HOLTERMANN

In "Siftings," page 883, Nov. 15, J. E. Crane does not agree with me upon the point of high-fence protection for bees. Now, I have met Mr. Crane at conventions in years gone by, and I have always valued his sound practical judgment. I read his department with interest, and find it instructive. There may be a condition, other than the fence, which brings about the result he mentions, or I have never knowingly had the combination of conditions he mentions. It is possible to find something an unqualified success for years, and then, owing to the introduction of another combination of conditions, find that in that particular instance it was a failure. Mr. Crane states, "I have known just such a yard hopelessly ruined in spring by such a fence. If the weather should be sunny, with cool north winds, such a yard will be many degrees warmer than outside." I reasoned that way before I tested the matter, but have never had the result he mentions.

Now let me say this: If bees are packed, there are many days when, so packed, they will not be influenced by the sun's warm rays, when, with less packing at the entrance, or with single-walled hives, they will be drawn out of the hive when the cold wind outside of the hive would be injurious to them. This is obvious, and is particularly true if the bees have had a cleansing flight. With the winter packing as I have described it, there is another advantage; and that is, that the first flight they have, unless there is an extraordinary rise of temperature, will not be at the same time with all the colonies. The stronger colonies, and those requiring a flight the most, will be those coming out first; and perhaps—in fact, quite often—those not requiring a flight will not fly at all the first day it is possible for them to fly. If a long time elapses between the time the well-wintering colonies might have had a flight, and when they can again fly, it may be an act of wisdom to disturb such colonies the first time when conditions are favorable. They will then winter better. This is particularly true of mid-winter flights under favorable conditions.

Next the side of the winter case from which the bees fly is not close to openings in the case in front, or the first to the right or left of it. This is on account of the way the cases are placed, with the object of breaking the rows of flight.

Where hives are set out of the cellar, and placed in rows with the entrances all in the same direction in the row, the tendency —yes, general result—is for *all* the bees to fly about the same time, resulting in tremendous excitement, and liability of the bees drifting, by which we mean that the bees are attracted to the most populous colonies or to the ends of rows.

By having just a certain combination of circumstances it would seem possible to have the result Mr. Crane mentions; but I have not so far had this condition, and I have had more loss in years past from not having the protection now given. What I should like to ask Mr. Crane is, Was the fence about 8 ft. high? were the bees packed in outer cases? and were the cases so placed as to break the openings in the rows so as to have every second case each way without an opening for the bees to fly from?

Let me again say, I do not despise—in fact, I wish, if possible—a location with natural shelter; but I would sooner have the protection from spring cold winds a distance of 8 ft. from the ground than to have none; and when it comes to winter protection I consider such protection almost imperative.

TARTARIC ACID.

Mr. Crane is also inclined to find no use for tartaric acid. I find that, by using it, I can make the syrup thicker than if I do not use it. I am an advocate of late fall feeding in my section. With 100 colonies I like to feed about Oct. 15. The weather may be cool at that time; and if the syrup is made 2¼ parts sugar to one part water it may crystallize so that is it difficult for the bees to take it. This is found particularly true if an inverted perforated feeder is used, for the crystals tend to form at the bottom of the food. Where tartaric acid is used this crystallization does not readily take place. More than that, where this thick syrup is left in the jar I have known the jars to break from the process of crystallization inside. Why or how I cannot tell; but that it takes place I know to my cost. Where tartaric acid has been used the

crystals are an entirely different formation. They take *very* much longer to form, and they never break the jar.

On the ground of chemistry the advantage of tartaric acid can be explained. The bees storing the syrup rapidly cannot be expected to invert it as thoroughly as with nectar which they gather thin from the field, and then have to evaporate to a consistency equal to the syrup made according to the above directions. A young man, quite closely related to me so far as practice is concerned, used to despise tartaric acid; but recently he experienced this crystallizing in cool weather, and remedied it by reheating the syrup in the feeders and adding tartaric acid.

Brantford, Canada.

MOVING BEES IN CAR LOTS

A New Arrangement of the Staging to Secure Greater Rigidity and Economy of Space

BY J. G. BROWN

Mr. Brown, recently from Colorado, is now one of our apiarists. He accompanied the second car of bees to the Dismal Swamp.—ED.

On page 547, July 15, 1914, appeared an illustration of a plan of car staging for moving bees by rail used by The A. I. Root Co. in shipping bees to and from Florida. But the severe strain to which the staging is subjected when holding a heavy load, and the bumps of the locomotive when switching, together with the excessive freight rates on bees, which in turn makes necessary the conserving of all possible room in the car, caused the devising of a more substantial and at the same time a more economical plan for future car cratings.

It will be noted by referring to the illustration mentioned above that the uprights bore the weight of all the tiers of hives above them, plus the weight of the staging. When the distance from the top of the upper tiers of hives to the railroad track is taken into consideration, together with the heavy motion of the car, the reader will form some idea of the strain upon the uprights. Neither will he be surprised that a part of the staging gave way in the first car, and Mr. Marchant was compelled to stop cars in transit and rebuild the staging.



FIG. 1.—Crating on platform ready to load.



FIG. 2.—One section in the car ready for the hives.

The original purpose was to arrange the hives so that any one of them could be removed in case the bees died on the trip; that the attendant might be placed at the least possible inconvenience if for any reason he wished to remove any colony. Experience showed that this was unnecessary. It wasted valuable space, for it is very bad to load a



FIG. 3.—Southern bound—first car.

large car to the minimum weight at best, so a plan had to be evolved that would reduce the waste space and at the same time increase the strength of the crating to be used. When necessary to take the bees south again, the form of crating shown in Fig. 1 was devised.

The reader will gain a fairly accurate idea of the simplicity of the crating by reference to the cuts. This crating was devised by G. H. Rea. It consists of five pieces 15 feet long, 1 x 3 inches; five pieces 2 x 4 x 33½ inches; five pieces 2 x 4 x 37½ inches. In nailing up, the cross-pieces were placed on the floor, beginning with one piece 2 x 4 x 37½ inches long set up on edge, then a piece 2 x 4 x 33½ inches long, and then alternating the pieces in this way until all the ten pieces were spaced, covering the 15 feet. It will be found the pieces were just 20 inches from center to center. Then one of the 1 x 3-inch boards was nailed on these cross-pieces just one inch from the ends. This allowed each cross-piece to project one inch to catch behind the upright strips nailed on the side of the car, as shown in Fig. 2. Another of the 15-foot pieces was nailed on the other end of the cross-pieces, allowing the long pieces to project 4 inches, the short ones coming flush with the edge of this board. The third 15-foot piece was spaced halfway between these two. The crating was then turned over and the remaining two boards nailed on the cross-pieces opposite the two outside boards already nailed on, and the crate was complete.

When the bees were loaded in the car,



FIG. 4.—Loading steamer on Norfolk dock. As shown, the hives were slid down the plank and easily transferred to the deck of the steamer.

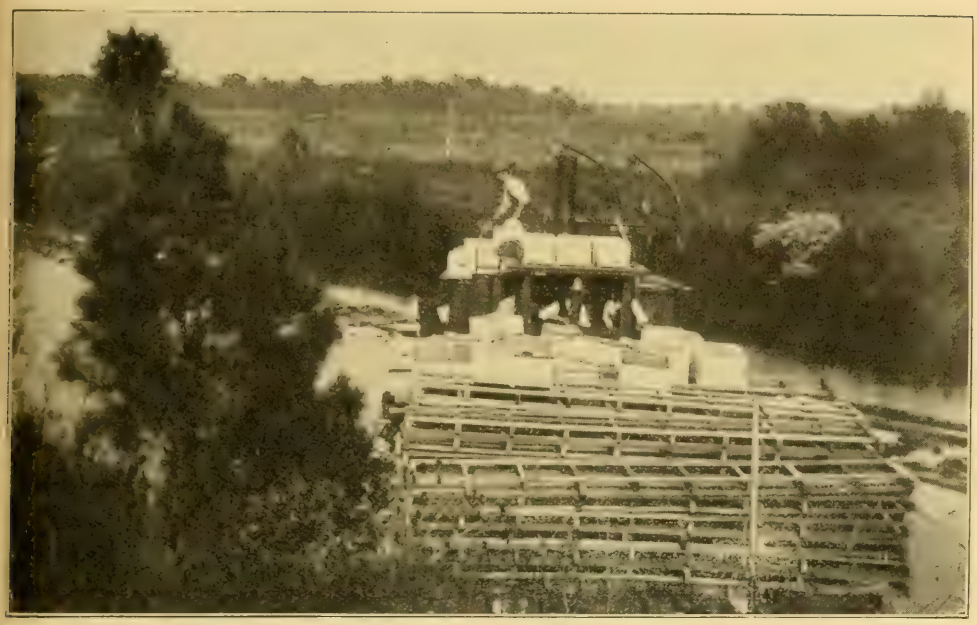


FIG. 5.—Tug "Commodore" freighted with bees and supplies, standing off to let a log raft pass. George Rea on top, supplying water through the screens.

twenty uprights, 2 x 4's, long enough to reach within about one inch of the car roof, were used. These pieces were bolted to the crating with ⅜-inch bolts. These, as will be seen, were bolted to the ends of the long cross-pieces in the crating. When these uprights were bolted in place, short pieces 2 x 4 were cut long enough to reach across the alley between the sections. These were spiked to the floor. Similar braces were placed at the top of the uprights. The halves of the car were now braced with 2x4's across the opening at the door, both on the floor and up at the top, and the job was complete.

By using the present method one can load 320 colonies, or, if the weather is cold, 384 of the ten-frame size in a 36-foot car.

It will be seen that this method allows sufficient room to use a sprinkler over the tops of any of the hives should any require water, as they most surely will if the weather be even moderately warm or the colonies be strong. It also allows an alley clear through the car from end to end and across the car from door to door, allowing room to carry water, trunk, suit-cases, etc.

When we loaded the car we had 16 in each tier in each section, or 64 in one tier in the whole car. We started on the floor of the car in one corner, setting the hives in pairs with their entrances toward the opposite end of the car, their backs tight up



Fig. 6.—All the comforts of home at the camp in the Dismal Swamp.

against the corner. The next pair of hives was set tight against the bottom of the first pair, etc., until 16 were placed. It will thus be seen that the arrangement allowed a space between the different pairs of hives for the free circulation of air.

When one tier was placed, a section of the crating was laid on top of the tier and crowded tight against the side of the car, which held it snugly in place. As mentioned before, the strips on the side of the car were so arranged that the ends of the 2 x 4's just caught behind them.

In warm weather this method of loading would be varied slightly by laying one section of the crating on the floor and beginning loading on top of it so as to allow the free circulation of air under the bottom of the lower tier.

By this method the crating is simply carried out when the car is unloaded, and is ready for use again whenever it may be needed.

In cold weather, as explained before, the hives may be placed right on the floor of the car.

As a further precaution the bottoms are removed, and each tier takes nine pairs of hives, instead of eight. Of course, tops and bottoms are screened.

THE HOLTERMANN WINTER CASES USED AT MEDINA

BY H. H. ROOT

In spite of the widespread interest in cellar wintering we believe that the large quadruple winter cases have never been used so extensively as during this present winter. A large number of beekeepers are wintering their bees for the first time this year following the general plan of the multiple-hive winter case, or, as it is sometimes called, the tenement hive. We ourselves are wintering one hundred and four colonies in cases made according to the directions given by R. F. Holtermann on pages 664 to 668, September 1. See editorial, p. 2, Jan. 1.

From our own experience so far, and from a large number of reports which we have received, we are prepared to believe that the winter case holding four colonies is the best solution of the wintering problem for localities where there are great extremes of heat and cold, especially in some of the more northern States, and in Canada, where the temperature goes below zero for a good many days at a time, and where there are high winds. Having said this we realize that cellar wintering will never be a thing of the past. The whole question depends on the cellar, on the locality, and last, but not least, on the man.

Good clear cypress costs in the neighborhood of $34.00 a thousand. In making these cases, however, we selected a cheaper grade, costing about $25.00 a thousand. However,

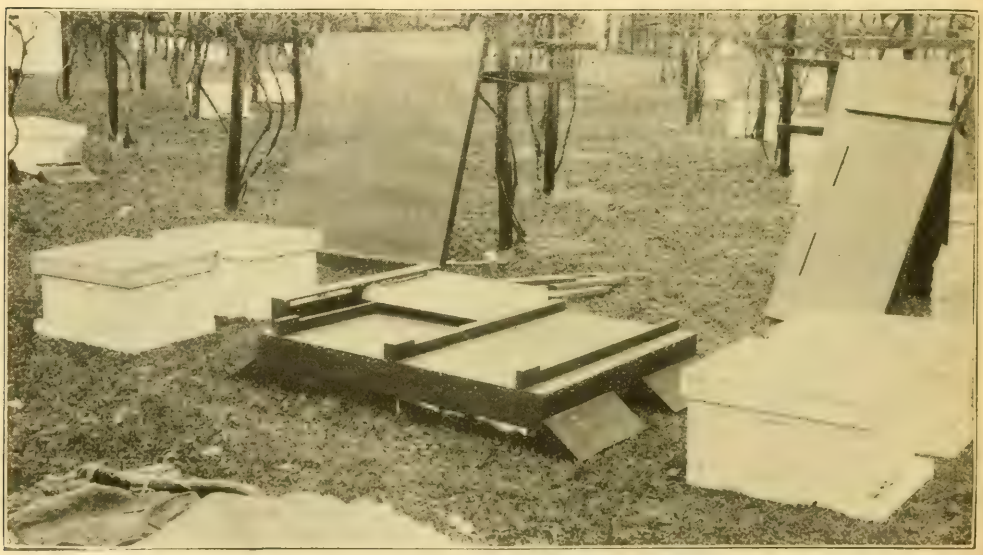


FIG. 1.—Each pair of hives moved out, and the winter-case floor set in place.

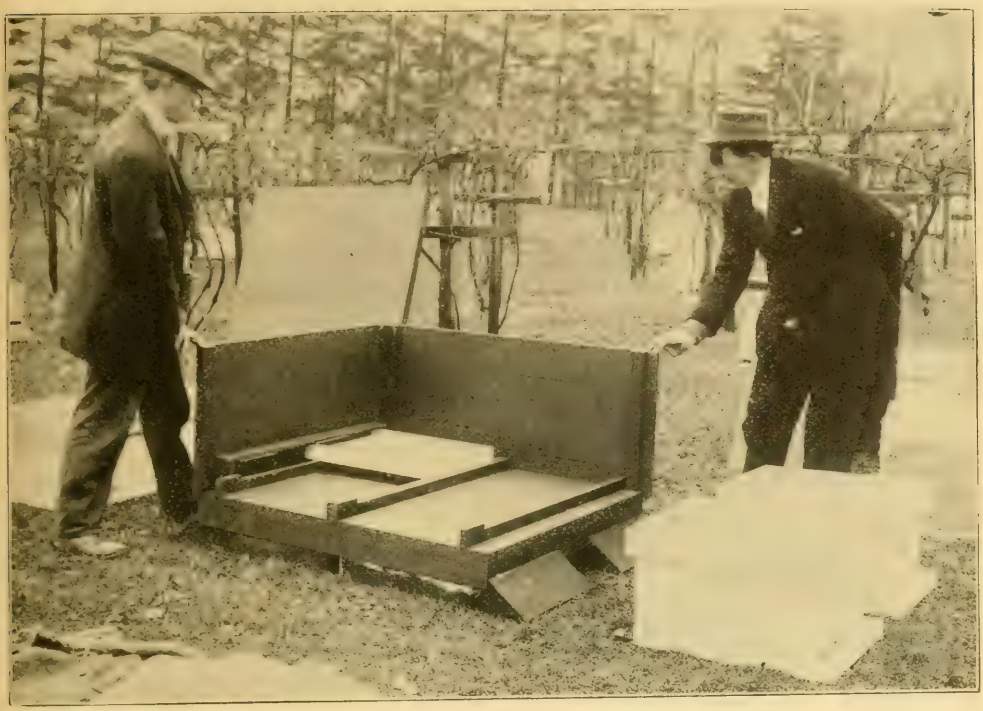


FIG. 2.—Two panels held in position to show the relation of the outside entrance to the hive entrance, and the "bridge" for keeping the packing material away from the entrance.

counting the lumber, paint, paper, and the labor, we found that the cases cost us very nearly $5.00 apiece, or, in round numbers, about $1.25 per hive. These figures do not include the packing material nor the labor of packing, etc.; therefore it may be seen that the winter case is not a cheap plan of wintering by any means, when the first cost is considered. But those who have wintered their bees thus for several seasons claim that the winter case is economical in the long run because of the fact that the colonies come through the winter in better condition than when wintered in any other way.

Assuming that the hives have been placed in groups of fours (two pairs back to back) it is necessary when ready to pack for winter to set each pair of hives to one side temporarily and place the quadruple bottom of the case in place on a suitable foundation. In Figs. 1 and 2 we placed a single-hive bottom-board in position to show how it is supported, and how the entrance is bridged over to prevent the packing material from filling it up. A



FIG. 3.—The four hives in position, the regular covers removed, leaving only the super covers so that the hives may be close together.



FIG. 4.—An automatic screwdriver for putting in the screws at the corners of the case.

permanent bottom, such as the one described by A. C. Ames, page 889, Nov. 15, is a more convenient arrangemeut provided the same location will be used continuously year after year.

In Fig. 2 two of the sides are held in position temporarily to show how they telescope down over the edge of the floor.

In Fig. 3 some packing has been strewn over the floor between the supporting cleats and the four hives placed in position. We used baled shavings for packing, not because we consider shavings better than leaves as recommended by Mr. Holtermann, but because they were more convenient. The bale of shavings is shown just back of the four hives in the picture.

It is something of a problem to move twenty-five or fifty of these large cases after they are nailed up. We nailed up the sides, therefore, arranging the cleats so that every thing would fit together properly, and then moved the whole outfit in the flat to the Blakeslee yard, where we intended to use them. Screw-holes had been drilled in the proper places, and it was but a short job to screw the corners together with an automatic screwdriver, as shown in Fig. 4. It would have taken less time to nail the corners; but since it would be more difficult to take them apart in case we should have to transfer them to some other yard in the future we decided to use the screws.

Fig. 5 shows the case set down over the four hives and the shavings added. We remove the regular covers, using the super covers only so that the hives may be placed close together, as shown in Fig. 3.

Fig. 6 shows one of these cases in which we are wintering four colonies at the home yard just after we had finished packing it. The cover picture for this issue shows one of the cases out at the Blakeslee yard after a month of snow and ice. We have two bee-cellars which we consider almost ideal; but somehow we have a more comfortable feeling when we think of the bees in these snug winter cases than we have when we go into either one of the cellars. Perhaps it is because we imagine that the bees, if given their choice, would ask for their hollow tree and the privilege of flying whenever the weather is suitable. A winter case is probably the nearest approach to the hollow tree practicable for the modern beekeeper. So far as we know, the winter cases give such protection that the clusters maintain nearly the same position regardless of the temperature outside.



FIG. 5.—The case set down over the hives, and the packing material put in.

REPORT OF THE CHICAGO NORTHWESTERN CONVENTION

Prices, Production, and Transportation Considered

BY J. L. GRAFF

One of the delegates to the Chicago Northwestern Beekeeping Association meeting held in Chicago December 17 and 18, struck a responsive chord when, in a modest talk, he advocated a more altruistic feeling among the men who engage in the production of honey. For several years the doctors, members of the American Medical Association, have been employing a lecturer to travel among the physicians of the nation to teach this kind of feeling for one another, and it is said to have had the most desirable effect. This beeman thought it bad policy to go about knocking one another, knocking the honey and the prices of others—better go around helping one another for the good of all. This little advice followed a hot discussion about prices, whether a beekeeper should put on a fancy price to indicate that the goods were of high quality, or whether the price should be kept within the reach of the average consumer. One apiarist held to the opinion that, if he established a high price, the buyer would form the impression that he was offered top-notch goods. The man who was satisfied to charge a less price resented the implication that his honey was not as good. From time immemorial these discussions have warmed up beekeepers' meetings, and doubtless this is the reason the modest man in the back row essayed to mix in a little leaven.



FIG. 6.—The cover on, and the job complete. The cover is roofed with a good quality of paper, and painted.

Nearly fifty men attended the meeting. They hailed from farms and homes within the Illinois, Indiana, and Wisconsin district close to Chicago. There was a considerable amount of woe mixed in with the natural jollity of the beekeepers, for nearly all of them told of a shortage of crop from the last honey-flow. An Iowa man got from his bees about 40 lbs. to the colony; a northern Wisconsin man had taken 80; a northern Indianian, 40; a northern Illinoisan, 40; a central Illinoisan had no surplus at all; a Lake County, Indiana, keeper, got 40; a Chicagoan 45; another Chicagoan 75; a western Illinois man 30. The largest production was reported by a member from central Wisconsin, 115 lbs.; and another Badger said that he had a surplus of 85 lbs. The other productions ran from forty down as low as twenty, and four said they had no surplus at all, and were heavy sugar-buyers in preparation for the winter months. The drouth of the late summer and fall months curtailing bloom was given as the cause of the light crop.

One of the most interesting talks of the convention was made by H. C. Ahlers, West Bend, Wis., who related some of his experiences in shipping his apiaries to vast Spanish-needle beds on the bottoms adjoining the Illinois and the Mississippi rivers. The cost of freighting from his home to Louisiana was $170 a car one way—500 colonies to the car. This did not include his own transportation traveling with the car; and this fact brought up the question as to the alleged unreasonableness in carrying a stockman free with his stock and charging a beeman for the privilege of riding with and caring for his bees *en route*. Mr. Ahlers told how he managed to secure the colonies in the car so that they will not be jolted out of place. He fastens stanchions in the car, leaving space to walk from one end of the car to the other. The space at the doors is left vacant for his own occupancy, but the hives are tiered up as high as the height of the car will permit. Plank nailed on lengthwise and crosswise at the doors are fastened

to the stanchions and wedged tight, so that none of the hives are jolted about. He carries 40 sixty-pound cans of water, and gives this to the bees by pouring it on the screens at the top of the hives, the passageway allowing him access for such purpose. An ordinary stock-car is used.

Another apiarist told of using refrigerator cars, by which plan an even temperature was preserved *en route.*

E. G. Bacon, of Wisconsin, talked on the subject of educating the people to eat honey. It isn't enough to say to a family, "Eat honey." The thing to do is to tell them why they should do so, to demonstrate the manifold points of utility, and to point out opportunities to substitute honey for sugar. The beekeepers should start a propaganda of this nature, but it cannot be done unless the money is first raised. One of the speakers said that if every beekeeper would contribute the price of half a pound of honey much could be raised for such an educational campaign. People of other countries, notably Germany, consume vast quantities of honey, and at a cost much in excess of prices in this country.

The question was brought up as to why the big bakeries are making use of less honey. It was stated that a big concern that formerly made use of 125 carloads is now using but fifteen. A South Water Street commission man said that the honey-sweetened cakes are less in favor.

E. S. Miller, Valparaiso, demonstrated the use of a bee-cellar in wintering bees. The proper temperature in this cellar is evenly maintained by the use of a sub-earth vitrified eight-inch air-duct, starting fifty feet away from the building at the earth surface, and opening on the bottom of the cellar. The cellar, 18 x 24 x 7, has a story above it, and then an attic. An upright flue extends from the bottom of the cellar through the roof, and a stove on the second floor heats the air sufficiently to keep up a circulation. The basement is of concrete. In this cellar Mr. Miller winters from 100 to 200 colonies with good results.

It is claimed that only a very small percentage of beekeepers belong to associations, although memberships are increasing; and considering the crops of the last season, and the territory covered by the Chicago Northwestern, this convention was a good one, chock full of real live interest.

A feature of the convention not printed in the program proved to be the most unexpected but none the less interesting.

During the forenoon session of the first day a man who looked like a prosperous farmer, about sixty years old, and who had participated in some of the discussions, was seen to move toward a closed piano in the corner of the room during a recess. Above the buzz of conversation was heard a lively tune, and the player was discovered to be the farmer beekeeper. He played none of the rag-time stuff of the present day, but the melodies which most people love. The name of the man at the piano is John Kleine, and his home is in Mendota, Illinois. He said that he had been playing the piano since he was a boy. He has a son and daughter, both musicians. The windows of his music-room open out into his beeyard; and when asked if he played for the bees as well as for himself and his family he said he did.

No one at the convention volunteered any remarks as to the effect of music on bees. The subject wasn't discussed; but we know of several instances in which dairywomen and dairymen believe in the efficacy of music for the cows at milking time.

Chicago, Ill.

A FINE FLORIDA BEE PASTURE

BY F. M. BALDWIN

A city engineer has little time for any thing but his regular task; but the close of the second week in October gave me a few hours off, and I took advantage of it to cross the river and hurry to the country south of Bradentown to see the bees that I had recently obtained from J. B. Notestein. I had bought four hives of him; and, acting on the advice of that expert beekeeper, C. H. Clute, I had divided three of them, one being too weak for successful division. My route took me just east of the creek where A. I. Root's ducks met the alligator. Just a little south of his chicken-yard was a great patch of gold gemming the landscape. A little further my eyes were gladdened by two more. Then there were others; and east of Bro. Ault's home yard was a great field of the cloth of gold. The wild sunflower was coming into full bloom. No nectar yet —but, ah the promise!

An examination of the hives revealed lots of brood and much new honey, evidently from Spanish needle, of which there were quantities on every side. To add to my expectations, goldenrod was beginning to



FIG. 1.—Colonies strong in honey above and below, and only six weeks on the stands, during which time each colony was divided twice.

show color, and that is usually followed by sweet myrtle, from which enough stores are gathered to carry us through to orange bloom in February and March. On my way back to Palmetto I plucked a big bunch of wild sunflower to prove to Mr. Clute that things were going well with my bees. But he had been further afield than I, and my tale was but a tame one to the one he could tell.

THE BIG SAWGRASS.

In the vernacular of South Florida, "a sawgrass" is a flat that is under water most of the year, and on which grows a wild grass with a fine saw edge. It is what covers most of the Everglades, and its presence means first-class land, rich and black. We have many sawgrasses in Manatee County—some of them covering hundreds of acres. The tract to which the title "The Big Sawgrass" is applied is about a mile north of Erie station, on the Seaboard R. R. It covers about a thousand acres. Too wet as a rule for fall and winter crops, it is given over to tomatoes in the early spring, and brings bountiful crops of them. The rest of the year it is covered with smartweed, thoroughwort, and wild sunflower. For the sake of brevity I shall call the last-named flower W. S. F., and the tract of land as the B. S. G. The last week in August Mr. H. L. Christopher, discouraged with the poor yield he was getting at Terra Ceia Junction, moved his bees to a live-oak hammock on the west side of the B. S. G. As Mr. Clute is the adviser of everybody in this section who works with bees, Mr. Christopher had taken him out that day to see what wonderful luck he was having, and to get his suggestion as to future manipulations. The tale he had to tell so far exceeded mine that I soon stopped talking and took to listening. Having first seen the light in that great State on the west bank of the Father of Waters that takes its name from the mighty Missouri, I had to be shown, and we agreed to run up to Erie Monday afternoon and look the B. S. G. over.

About 3 P. M. the train left us at the little flag station, and we walked north across the prairie through the saw palmetto. A mile and a half of that kind of thing grows monotonous, and we were not sorry to rest and look at the flight of booming bees. The 20-weak colonies had been divided and were now fifty strong ones. Hives from which colonies had twice been started were carrying a super, and the super was full of capped honey. Every hive of the fifty was heavy with stores, and seemed to be begging for combs or foundation—any old thing in which to place nectar. To us it looked almost like a crime that the beekeeper was not right there vigorously running an extractor. It was more room or a bad case of swarming, and that right then. Before he would let me snap a picture, Mr. Clute insisted that we take the liberty of sampling smartweed honey, which he said was of the best. A taste was all that was needed to convince me that it was A No. 1 white, of fine flavor, and should command a top price in any market. The picture was then taken, and we started to explore the B. S. G. *Explore* is the correct term. It was a wilderness of weeds, many of them far above our heads, and only by hard work could we make any headway through the tangle of heavy growth. The bees sailed over it with ease, carrying loads of sweets. But we could scarcely penetrate its dense jungle of grass and flowers. We knew that we were near the big drainage canal that had been completed within the last year, and thought that if we could get to it we could go east along its left bank to the head of the ditch. The steam-shovels had dropped the earth and marl fifteen feet from its banks, and we planned to travel along this spoilbank. But W. S. F. had



FIG. 2.—The big drainage canal in Florida, showing how the wild flowers crowd the banks.

complete possession of the spoilbank also. We could not make progress along it, and we dropped down into the ditch and walked at the water's edge on a slippery, sloping incline set at an angle of 45 degrees.

After what seemed an hour we came to a bridge and a road which led toward the railway. We climbed out of the ditch into the road, catching a snap-shot by the way. Everywhere there were vast stretches of nectar-bearing plants. In a comparatively open place Mr. Clute gathered a bunch of boneset and held it up while he posed beside a clump of W. S. F. that towered far above his head. The boneset and the smartweed had been in flower for more than six weeks. They looked as if they were taking a fresh start with a second crop; and the W. S. F. that gemmed with gold this rich region was just coming into its own. There were acres upon acres of honey—enough to keep a thousand colonies busy for months, and only fifty colonies at one corner. What a wealth of sweetness going to waste!

As we walked we discussed the wisdom of bringing bees to save a little of this vast store. Ours were doing well where they were. Spanish needle and goldenrod would give them pasture for a while, then would come sweet myrtle, on which they always grow rich. To move meant time, trouble, and expense. We thought we might as well let well enough alone.

Then we talked of the future. What about 1915? Should we keep the bees on their present stands until after the orange and palmetto flow, then get them in June to the B. S. G. for a summer and fall killing? The old beekeepers, like Poppleton, claim that there is no honey-flow on this peninsula in August. But we believe we can show them that the last word has not yet been said about Florida possibilities. The longer one stays in this great State the more he finds what it can do. Mr. Christopher had a summer flow, and he was at least a month late getting there as we figure it. There are other sawgrasses, and they should be as promising as this.

INTRODUCING BY SMEARING THE QUEEN WITH HONEY.

Mr. Clute had a fine year—more than 30,000 pounds and 100 per cent increase. If he carries out the project that we discussed he should be able to show three times as good a year in the one that is coming. Like all old hands with the bees, he has a store of practical knowledge that is very valuable to the novice. On one occasion, when I had a high-priced queen to introduce, he said, "Let the smoke method go. Put her in half a cup of honey. Don't be afraid to push her 'way down into it with your fingers. Smear her all over. The bees will lick her clean. Get her covered deep, and pour her and the honey into the top of the brood-chamber." My heart sank when I saw her apparently drowned in the honey smothered in sweetness. But the deed was done, and I could think of no way to get the sticky stuff from her body and wings. The bees would have to do it or she would be hopelessly smothered. So into the hive I poured her. When I opened the hive after several days I found that she had been accepted, and was doing all that one could desire of the mother of the colony. Not long after, I repeated the operation. This



FIG. 3.—Mr. C. H. Clute standing in smartweed and boneset, looking up at the wild sunflower.

time it was a virgin, and she was laying when next the hive was examined. Mr. Clute claims to have used this method for years without a single failure. It is easy; and, if safe, just what the fraternity has been looking for. Has anybody had an experience that has given a different result? Will some venturesome spirit please try it and report? It will probably prove simple, safe, and successful.

CALIFORNIA CONVENTION REPORT

BY P. C. CHADWICK

The California State Beekeepers' Association convention was held as scheduled, Dec. 16 and 17, at the Y. M. C. A., Los Angeles. The attendance was not up to the usual, which may be accounted for to some extent by the fact that rain and threatening weather continued throughout the two days.

The first session was called to order by the president, Mr. Farree, who gave what he called his message to the convention. Prof. Cook being present, but unable to attend the following day, was given preference on the program. His talk was both interesting and instructive, and he was given a vote of thanks for his remarks. He spoke briefly of the beekeeper and the horticulturist, after which he gave a long and interesting talk on honey as a food—its relation to the physical economy. Reviewing the food contents, especially sugar, in various food staples, and comparing them to honey was the main feature of the address. It was the first time the writer had had an opportunity to hear Prof. Cook lecture, and it was the best discourse he has ever heard at State conventions. The association needs more men like him on the program each year. There are plenty of members who generalize in their thoughts; but to such men as Cook one must look for scientific facts.

Following Prof. Cook's address the discussion drifted into the weight of honey per gallon, cause of granulation, etc.

The afternoon session was called together by Delos Wood, with Harry K. Hill acting secretary. Few were present at the beginning of the session; but Mr. Wood announced "One o'clock is one o'clock so far as I have ever been able to learn."

The Los Angeles County inspector, Geo. G. De Sellen, gave a brief talk while members were getting to the hall. An interesting paper on marketing was read, discussion following, which drifted into the requirements of the net-weight law.

Prof. Cook again spoke, this time his subject being the proposed foul-brood law, in which he warned the members against

trying to force the bill through to the Governor as now proposed. His opinion was that the bill would be vetoed if the provision which gives the president and secretary of the association control of the board by legislating them as members of the board with a controlling power. There was some disagreement with Prof. Cook's opinion, one member even declaring that the bill could be forced over the Governor's head; but a very strong opinion prevailed that Hiram Johnson is still very much in evidence as Governor of the State, and any such policy could not be accomplished.

Mr. Wilson, the legal adviser of the association, spoke briefly on legal lines, after which he was given a vote of thanks, as he had spent considerable time and energy on association work without charging for his services.

The secretary's report was then read and adopted. A report was made by J. G. Gilstrap for Prof. Lynch, who is at the head of the northern division of the present exhibit committee, and who will have the responsibility for whatever exhibit is made at San Francisco. The exhibit as planned is to be of an instructive nature.

On Thursday, the 17th, Delos Wood, acting as chairman of the convention, called the meeting to order promptly on time, George Brown acting as secretary. Few members were on time at the call. The reports of the county inspectors were taken up. All inspectors reported some loss by disease, black brood being the most prevalent, with better conditions existing. The Los Angeles County inspector reported the number of colonies for his county, normally 60,000, had dwindled to 30,000. Great improvement had been made by requeening. It was his impression that, by the end of another season, they would be back to their normal numbers.

The open discussion as to the management of the journal, to which a number of the members had been assigned, was eliminated from the program, due to the fact that no good could be accomplished, and that it was sure to precipitate a very warm discussion, although there was no mention of these facts except a warning by L. B. Andrews. Mr. Andrews has a knack of sighting these riffles and avoiding them.

The election of officers resulted as follows: Willis Lynch, president, with A. B. Shaffner re-elected as secretary. Seven candidates were nominated for the executive board with but three to elect. Harry K. Hill and J. G. Gilstrap were almost unanimously elected on the first ballot, with George Brown and W. H. Allen tied. Mr. Allen won out on the second ballot by three votes. This puts the control of the association in the North.

An interesting report by J. Edgar Ross on his litigation over keeping bees in the city of Brawley was read. An unmistakable case of bee-poisoning was also reported. The raising of a legal fund for the protection of beekeepers was suggested by Mr. J. D. Bixby, which met a hearty response, and was immediately acted upon. The plan is to assess each member three cents per colony, if need be, one cent to be available at once, the other two upon call. The convention adjourned, with the understanding that it would probably be called in San Francisco next summer.

MORE ABOUT CAUCASIAN BEES

BY J. J. WILDER

In commenting on my previous article about Caucasian bees the editor states that they were great swarmers when under test; and from reports from other beekeepers they had experienced about the same thing; and, going further, in one of the articles, that on this trial the greatest season resulted with them in an almost complete honey failure on account of their high swarming impulse.

Mr. Benton, the importer of these bees, made the statement more than once in his writings that they swarm too frequently, but that they are good honey-gatherers. Once in a great while a beekeeper might experience the same thing the editor and a few others have experienced with these bees; but even this might be said of what we call the best. This is surely not much ground upon which to condemn.

I have had years of experience with these bees in an extensive way, and have sent out several thousand of their queens to almost all parts of the United States. From the purchasers many reports have returned, and not one has reported the editor's experience. Yes, without a single exception, based on reports, every one is pleased with this stock.

I have had to discontinue the sales of these queens; and as I have none to offer I have no policy in this article except to bring out the facts about them as I have found them, and as others have reported.

We have found Caucasian bees almost

non-swarming under our methods of controlling them. We give them plenty of ventilation at the bottom of the hive, plenty of room at all times for the queen, and plenty of storing room, allowing no honey to be finished up next to the brood-nest during the height of the swarming season. The foundation is started and partly drawn out there, then raised, and another one given as long as they will draw out foundation. Then by our general method of frame manipulation we look over the brood-nest once a week during this time; and should any preparation for swarming be found we remove the queen-cells or divide them up, making two colonies out of one. The latter we do mostly, for we want the increase.

But there is only a very small part that ever attempts to swarm after the main honey-flow comes on, and the most of the increase is made on the first and second rounds in early spring. After the main honey-flow is on, only two or three natural swarms will issue from each apiary; and if we do not resort to frame manipulation the loss in bees is almost nothing.

What about these few natural swarms from these bees? They are not more than a mere double handful of bees, and not worth hiving. We have left off having the farmers living near our apiaries hive swarms for us, should they find any.

BUILDING UP.

This alone is almost a redeeming feature over the Italians. Artificial feeding is not necessary to bring this about if there are any outside resources obtainable.

It might be said that such rapid building up and great progress in this way, kept up throughout the season, might not always be in their favor. I have these bees in almost every kind of location in the South, and I never saw these colonies rise to such great pitch and go back. As a rule they maintain their strength, and store right on throughout the season. Of course progress may be slow at times when nectar is not so plentiful.

On the other hand, what do these great rousing colonies mean to the beekeeper who wants to spread his business, especially in the spring? Well, it means almost any amount of increase he wants, right at a time when it will be best to make it. In doing this I usually find two full-depth eight-frame hive-bodies full of brood, and very often a shallow extracting-super or two with some brood in them in addition. Very often I find as much as three bodies of brood, quite often four, sometimes five, and once in a great while six, with brood scattered through them. This may sound a little "fishy," or the limit on extremes; but as I have a number of honest men working for me who know this to be a fact I am not afraid that I shall be branded as untruthful. The beekeeper cannot afford to ignore this fact; for it is a matter of great consideration by any beekeeper who is not pleased with the stock he has.

AS HONEY-GATHERERS.

I have mentioned this feature of these bees before in GLEANINGS, and it is not worth while to dwell on it, for the interested readers can refer back a few numbers and understand more fully. But under this head there is one more feature I wish to mention, and it is a redeeming one.

I have often been astonished at the progress these bees would make in storing in just a few days when the main flow came on heavily and suddenly, owing to moderating weather conditions. Up to May 10 this season it looked as if the crop from gallberry was going to be a failure. The bloom was far advanced; nothing appeared in the supers, and blooming would soon be past. But suddenly a great harvest took place at just the last moment as the blooming period was passing off. They just simply went wild over honey-gathering, and I never saw as great energy manifested in bees. They were simply ready for it in every way. We have few days of a great honey-flow in the South, and sometimes these are reduced to very few, owing to adverse weather conditions. The remainder of the season the flow is slow or weak, and a marvelous thing must take place during the short time it is at its best.

FINISHING THE ARTICLE.

There is nothing more fascinating than to remove from two to five supers of well-finished honey from each colony of Caucasians. These dark smutty-colored bees, when smoked, move down between the combs, in appearance like a dark mantle folding down from over the honey, which looks like frames of compacted snow, so beautifully white and evenly finished is it. This feature makes them marvelous indeed.

Here in the South we produce much honey that is naturally thin in body, which, in the extracted form, ferments to some extent and gives dissatisfaction on the market. It results about the same in the comb form, the capping bulging and sweating, and having a greasy appearance. Such honey is simply too thin to be wholesome. This is found not only in the South but in the North as well. The Caucasians, as a rule, evaporate this seemingly naturally thin honey and give it a good body, and it is

much more wholesome. They are very slow to cap such honey—so much so that it looks as if they do not intend to. This is another good feature in them worthy of much praise.

THEIR ONLY BAD FEATURE.

The only thing that has ever been brought up against these bees that I consider worthy of argument is that they are bad to propolize or glue up the interior parts of their hives, and often deposit this glue in balls of considerable size in the most remote parts of the hive, and especially about the bottom, causing annoyance in frame manipulation. Since I have had these bees I notice that this bad feature is gradually leaving them. I have partly brought this about by breeding from stock less inclined to do this. But with good wide-open entrances, front and back, they make their deposits of glue there, endeavoring, seemingly, to close up these openings where it is easily removed, and we no longer consider this an objection. It has been the experience of all that this gathering of propolis does not occur except during a honey-dearth. Is not this evidence that they are great gatherers or very energetic foragers?

THEIR CROSSES.

I have crossed them considerably with my Italians, and I like the cross as well as I do the pure stock. In fact, the "dash" of Italian blood seems to combine the good qualities of both races, and make a great strain of bees, in some particulars preferable to the pure stock. It seems to a great extent to eliminate the desire to gather propolis and build burr and brace combs, and does not change their good qualities. The only bad thing about crossing these two great races of bees in this way is that the cross will gradually go out in favor of the Caucasians. This is accounted for by the fact that they raise more drones. In point of purity they are racially strong where Italians are weak. The reader should not think that I am condemning in the least the Italian bees. I have over one thousand colonies headed with pure Italian queens as near the $20 mark as they can be bred, and I expect to keep them and add more.

Cordele, Ga.

FIGHTING THE ANT INVADER

BY E. S. MILES

On page 944, Dec. 1, 1914, F. H. Cooper writes an interesting account of the insect and bird enemies of the bees in South Africa. I had kept bees a good many years, and in four or five different places, before I found there was an insect enemy formidable enough to make real trouble here in Iowa; and this experience which I shall relate may be so exceptional as to have no practical bearing. In fact, I think one would meet with it very rarely, and yet, as Mr. Cooper says, it might be interesting to read nevertheless. The enemy referred to must be about the same ant Mr. Cooper describes on page 945 as being bee-eater rather than a honey-eater.

It is a large black ant, although, if I remember rightly, the fore part of its body is dark red in color. It lives in great colonies that gather small sticks and rubbish, and make a mound from 1½ to 3 feet in diameter, and perhaps a foot or more high. They also work down into the ground a foot or more, and in cold weather they go down and do not appear until the warm days of spring. On the first real warm days of spring, however, the top of their mound is black with them, and they can be seen running in all directions, going mostly in certain paths or lines. These lines will go for several rods in all directions from the mound, the ants evidently traveling a regular route or trail. They are usually to be found in old brushy or woody pastures, hence are not often if ever found on farms that are rotated in crops.

In locating an outyard in the spring of 1912,in an old brushy pasture, never having heard of ants bothering bees in Iowa, hence thinking of nothing of the kind, I set a yard down right in the center of a circle of five or six monstrous colonies of these ants. I did not notice the ants until we had the yard all rigged up, and then we did not know that the bees could not win out in a "scrap" with the little black demons. On the contrary, we expected to see some ants very glad to go on about their own business shortly after we set the bees loose in this yard.

Near where one of these ant-trails ran through the yard we set what we considered a very vigorous colony of Italians—one that seemed very quick to notice and resent any intrusion into their domain, so we watched with somewhat pleasurable anticipation to see Mr. Ant get shown the way out when he (or she) began investigating the entrance to the hive. Imagine our surprise to see that, instead of Miss Bee grab-

bing Mr. Ant and showing him the door Mr. Ant ran right up to Miss Bee and grabbed for her! At this the bee turned, ran, and squealed, or whined, as Mr. Cooper calls it. To me it sounded like a squeal of fear. When the ants get hold of bees (they usually get them by the leg), the bees seem terrified, and usually fly away, ant and all. Sometimes a bee will get up courage enough to seize an ant, when they also fly away with them. I cannot say positively, but think from what observation I've had, that the ant never lets go. His grip is that of a bulldog, I believe, and while the bee rids the hive of one ant by flying, perhaps, far afield with him, yet it seems highly probable that the ant also holds the bee in a death-grip, so that she does not return. When we found that the ants would in a short time conquer the bees we got busy. We set one or two of the worst besieged hives up on stakes, painted around them with axle grease, and sent at once for kerosene. We took a sprinkler and sprinkled kerosene over all the ant-mounds, and along the main trails where they were traveling thickest, and set it afire. We used up probably a barrel of kerosene in getting the ants destroyed enough so that the bees were safe. We found that the remnants of colonies of ants would gather together and start business again, a handful or so seeming to be able to start a colony and recuperate again. But as the bees built up and became strong they would repel the few ants that would occasionally reach the hives from these. By prompt action we suffered no material damage to the bees the first season; and the next, while there were a few colonies of the ants, they were not populous enough to forage the beeyard, so the matter slipped our mind.

Last spring we again placed the colonies at this yard on their stands, and noticed the ants were again quite numerous; so we intended to go over and give them another round with kerosene; but something prevented our going to this yard again for a couple of weeks. When we did reach the yard we found such a state of affairs as exists in Europe. War was on. One colony was gone completely—not a bee in the hive. I suppose they had swarmed out, and the ants had dragged off the dead ones, as not a bee remained, dead or alive. Several other hives were about on their last line of defenses, being huddled up on top of the combs with the ants all about the entrance, and dragging down a bee here and there whenever they could get hold of one. We managed to save all these, however, by setting the hives on clean bottoms, thus getting most of the ants away, and stamping those coming and going to prevent their getting into the hives. We again got kerosene, and, setting some of the hives away, we sprinkled the leaves and grass around the hive-stands with kerosene and burned it off. This burned space bothered the other ants so that it checked the attack on the hives, and in the mean while we again gave their mounds and runways the kerosene-and-fire treatment. After that we kept a heavy stamper, such as is used for firming the ground before laying cement sidewalks; and whenever we were at that yard we looked up all the remnants of ant colonies and stamped them with this stamper.

Yet with all this warfare on them I think there are yet enough ants within reach of that yard to exterminate it within three years, if left alone. We think these ants are a little the most persistent and about the "nerviest" creatures yet encountered. We are now debating whether to go on fighting ants or move the yard.

Dunlap, Iowa.

A REVIEW OF TWO GOVERNMENT BULLETINS

Observations of the Temperature of the Honey Cluster in Winter

BY R. F. HOLTERMANN

Before me lie two bulletins, Nos. 93 and 96 of the United States Department of Agriculture. The former is by E. F. Phillips, Ph.D., and his assistant, George S. Demuth, Washington, D. C.; the latter by Burton N. Gates, Ph.D., now of the Massachusetts Agricultural College.

In my estimation these two bulletins contain the report of some of the very best work ever done for beekeepers by government agricultural experiment stations. There is abundant room for the beekeeper to find fault with much of the work done by various agricultural departments, if that work is supposed to be done in the interest of beekeepers, but the investigations reported in these bulletins are of a nature bearing directly upon a problem which is of the utmost importance to every northern or northerly beekeeper. The investigations and results recorded are none the less valuable because they (with scarcely an exception)

fully concur with the conclusions of our most careful beekeepers who have had time to make observations on their work. They agree with my own deductions, and give me further food for thought.

LOSSES FROM BAD WINTERING.

Dr. Phillips very well puts the results of the experience of the business beekeeper in wintering as leaving it "one of the most perplexing confronting the beekeeper, especially in the North," and attributing it to being "well nigh impossible to determine what external conditions are most favorable except by the gross results of experience."

Dr. Phillips is certainly not given to exaggeration when he states that "American beekeepers lose thousands of dollars annually in wintering, from the actual death of colonies, and even still more from those colonies that do not die, but are reduced in numbers and vitality." Few well-informed beekeepers would cavil with him if he multiplied the figure by ten.

CONDITIONS THAT INFLUENCE.

He states: "The factors influencing the welfare of the colony and the behavior of the bees are numerous, and closely interrelated. Of the chief ones may be mentioned external temperature, food, ventilation, humidity, the condition of the colony at the beginning of winter, and various forms of irritation."

The above points, in my estimation, pretty well cover the ground; and during a conversation I had with Mr. Morley Pettit when the experiment apiary was at Jordon Harbor, Ontario, giving him my views that the apicultural investigations ought to be carried on at the Ontario Agricultural College, Guelph, I stated that investigations in wintering ought to be carried on; that this should be done in winter repositories in which temperature, humidity, and ventilation would be absolutely under control.

The work in Ontario has not developed along the line that many of us hoped it would, probably due to a lack of funds necessary to grant for experimental work of the above nature.

DISTURBANCES.

Dr. Phillips and Mr. Demuth show in Bulletin 93, page 2, by temperature records taken from carefully placed electrical thermometers (which are much more sensitive and accurate than mercurial thermometers), that "disturbances of the colony may influence the temperature of the cluster for a considerable period, often more than one day."

In my cellar wintering I always considered it a small calamity to show any one through the bee-cellar. Bees are much more sensitive to environments than we are. They can scent blossoms miles away. If we walk about a hive in summer without touching it the bees soon show disturbance. In short, their nervous organization is much more sensitive than our own. They are compared to us as the electrical thermometer is compared to the mercurial thermometer for recording temperature, only more so. The disturbance of colonies leads to changes of temperature which are the result of the increased consumption of stores, and, no doubt, lost vitality in the bees. Disturbances should, therefore, be avoided. When visiting the bee-cellars of others I have aimed at creating as little disturbance as possible, and coming out as soon as practicable.

DISTURBANCE FROM NEIGHBORING COLONIES.

The authors state, page 3, "Disturbances of outside colonies have also been found to influence their behavior in a pronounced manner, especially in cold weather." This is exactly the conclusion I have come to from frequent experiences; and to obviate this as much as possible I have said that every colony in a cellar should have a distinct base upon which to rest to prevent communication with others. Benches or long boards for cellar stands are bad. If we take a hive of bees, and place thereon four colonies, should one colony winter badly and become restless that restlessness is likely to affect injuriously all the bees in the pile, even communicating it to other piles in the proximity, doing damage in proportion to the length of time the bees have to remain in the cellar. My deductions were the result of outside observations; theirs, the result of the careful readings of temperatures, which is much more satisfactory and conclusive. For the same reason I condemn strongly a cement floor, also a board floor if it can be avoided. Separate stands should be used for each pile of hives. They are best on an earth floor with as little adhesion between particles as can be obtained, sand being better than clay. Then do not put too many bees in the cellar. I feel quite sure that in the cellar I built, 25 x 50 ft. outside, 7 ft. in the clear, 200 colonies will winter better than 400 or 500. I have always found some colonies more restless than others.

BROOD-REARING IN WINTER.

The authors, page 6, state, "The rearing of brood in winter causes a marked increase in heat production, and constitutes a condition which may become one of the most disastrous that can befall a confined colony."

On page 7, following this remark, we find the following: "If brood is reared, the work of the bee is necessarily enormously increased, and their vitality is correspondingly decreased. So far as evidence is available in this work, the colony is not fully recompensed for this expenditure of energy by an increase in the strength of the colony by bees thus reared." To this I would agree —activity results in reduced vitality; and nature, to supply this loss, brings on brooding to replace the lost vitality. Disturbing the colony results in a rise in temperature of the colony. If the bees have bad stores they will become restless, and the temperature of the cluster will rise; and a continuance of this will mean pronounced loss of vitality and brood-rearing. But with the confined and increased consumption there is an accumulation of feces in the bowels of the bees; the colony becomes more active, and this activity tends to dysentery. Take a colony with normal stores; confine it, then disturb it or place it under disturbing conditions, and it will soon have dysentery. In brooding the increased consumption of stores tends to fill the intestine with fecal matter; and that activity, for any length of time with flight, is not normal. Again, I know of no young animal which, during the building of its body, does not accumulate intestinal refuse of which it has to get rid soon after its own independent activities begin. I admit I do not know very much about this; but I have noticed the young bee void what I thought (and think now) corresponds to this; and my impression is that a young bee should have a cleansing flight soon after emerging from the cell.

THE LONGER THE CONFINEMENT THE HIGHER THE TEMPERATURE.

The observations in the bulletin show a rising temperature as the season of confinement is prolonged, and, with that, brood-rearing. This is just what we should expect. However, let me say here that the observations were taken with colonies which, owing to their location at Philadelphia, could have frequent flights throughout the winter. I venture to say, judging from the frequent examination of colonies in very early spring, that, the better the bees are wintering, the less brood will be reared, and the fewer stores will be used, other things being equal, and the less loss of vital energy in the colony.

THE INFLUENCE OF STORES—HONEY-DEW.

On page 12 we find: "In the case of colony 3, fed on honey-dew honey stores, the factor which caused more heat to be produced evidently increased much more rapidly. As stated previously, honey-dew honey is a poor food for winter, and is so recognized. It contains the same sugars as honey, but contains in addition a considerable amount of dextrine, the particular lot fed to colony 3 containing 4.55 per cent, while good honey contains only a fraction of 1 per cent. From the evidence at hand it appears that dextrine cannot be digested by bees; and whether or not this is the explanation, honey-dew honey causes the rapid accumulation of feces, which usually results in the condition known as dysentery, in bad cases of which the feces are voided in the hive." The above, so far as the effect of honey-dew stores is concerned, can be vouched for by a great many northern beekeepers, and we may see the fruit of some such stores the coming spring.

Again, page 12, we have the following: "It therefore appears that the accumulation of feces acts as an irritant, causing the bees to become more active, and, consequently, to maintain a higher temperature. We are, therefore, justified in believing that the cause of poor wintering on honey-dew honey is due to excessive activity, resulting in the bees wearing themselves out, and, ultimately, in the death of the colony." This exactly coincides with practical results; and the reason why colonies which have not wintered quietly may spring-dwindle a great deal more than well-wintered colonies is because they have less vitality left, and succumb more readily under adverse conditions.

DYSENTERY.

On page 13 we find: "It therefore follows that excessive activity causes the consumption of more food, resulting in turn in more feces, so that colonies on poor stores are traveling in a vicious circle, which, if the feces cannot be discharged, results in the death of the colony. In the work here recorded no attention was paid to the theory that dysentery is due to an infection, since there is nothing in the observations made that lends any support to that idea."

The above confirms my opinion. What might make some believe that this dysentery is infectious is that it is liable to break out in colonies in the vicinity of the one affected; but as these temperature observations record, and as my previous observations lead me to believe, it is the disturbance which the colony with the dysentery communicates to others in the vicinity which causes activity, increased consumption of stores, brood-rearing, the accumulation of feces, and dysentery.

ACTIVITY IN CONFINEMENT.

On page 13 we again find: "While the activity of the cluster is greater at some times than at others, there are not, as has

been held, regular intervals of activity at which the colony rouses itself to take food. At no time is a colony kept at a room temperature of 45° F. or less in a condition which can be characterized as inactive. Presumably the reported intervals of activity have occurred when the colony made a noise due to disturbance by the beekeeper." I have never noticed colonies entirely inactive. That means a good deal; and I never saw a colony in which there were *no bees* moving. I never decided just how a colony took its food during the season of activity; but where the bees of a colony appeared constantly on the *qui vive,* and ready to fly at the light the moment it appeared, I decided it was wintering badly.

LONG CONFINEMENT AND POOR FOOD.

On the same page the authors state, "Keeping these bees in a cellar protected them from low outside temperature; but the lack of opportunity for a normal ejection of feces caused a condition more serious than extremely cold weather." Again, "Poor food is evidently a more serious handicap than low temperature. We must remember that in many sections bees, even if wintering outside, owing to continuously low temperature, are unlikely to have a cleansing flight during the entire winter. In my own section of country (Brantford) they generally but not always have a flight during midwinter or early spring.

FORMATION OF CLUSTER AND POSITION OF THE INDIVIDUAL BEE.

The formation of the cluster is then dealt with. We find the following on page 14: "The position with the heads inward is typical, except when condensed moisture drops on the cluster, as it often does in cool weather, when the bees at the top turn so that their heads are upward. The bees in the outer shell are quiet except for an occasional shifting of positions. Inside this rather definite shell the bees between the combs are not so close together, nor are they headed in any one way. . . . When the combs were separated the circle of bees in the shell was clearly observable. When a comb from the center of the cluster was shaken, the active bees in the center of the circle dropped off readily; and those in the outer shell, which were somewhat sluggish, were removed with more difficulty. After this was done, those occupying empty cells in the center of the sphere backed out of the cells and were shaken off. Finally, those occupying cells in the borders of the sphere backed out, showing a well-marked circle on the combs."

Any observing person who has pulled a cluster of bees apart in cold weather by removing the combs will readily understand the above graphic description; and those who have not done so will have to read carefully several times before they can enter into the degrees of activity in the various parts of the cluster.

No doubt the hair on the abdomen of the bee makes such a cluster almost a non-conductor of heat. To do away with the dropping of moisture on the bees I am an advocate of absorbent packing above the frames.

VARIATIONS OF TEMPERATURE.

In Bulletin No. 96, page 12, Dr. Gates states: "During the period of most protracted cold, from Jan. 23 to Feb. 1, when the outside air ranged from 0° C. (32° F.), thermometer f followed the outside temperature closely, and the course of the two curves is practically the same. In some cases, as, for instance, on Jan. 26, thermometer f was slightly lower than the record of the outside air, which may possibly be explained by lack of ventilation, or stagnation of the air of the hive."

We must remember that these colonies were not in what beekeepers call winter-packed hives, and that, therfore, the air changed more rapidly than with packed hives; and with the more rapid circulation of air there would be a greater variation between the cluster temperature and the air below the cluster. Again, a variation of even only a few degrees, and that having to be kept up for the entire winter, would draw heavily upon the honey stores and also upon the vitality of the bees which have to generate the heat.

A HUMMING NOISE.

It has been a subject of controversy as to whether bees wintering well make any noise in the repository. I never entered my cellar (containing sometimes as many as 500 colonies) without hearing some noise; but I thought that perhaps it came from colonies more aroused than others. The authors on page 15, Bulletin 93, state: "That higher temperature may be produced, greatly increased muscular activity is required; and in colony C in cold weather, bees in the center of the shell of insulating bees were seen fanning vigorously, and executing other movements, such as shaking and rapid respiration. We thus have the paradoxical condition that bees fan to heat the cluster in winter as well as to cool the hive in summer. Observations of this kind were repeated beyond number; and the theory of the method of heat production is entirely supported by the repeated observation of a humming noise from the cluster during cold weather." The difference in the two above conditions is that in winter the heat is

conserved, while in summer it is driven away.

HOW HEAT IS GENERATED.

The following, page 15, seems almost incredible. "A few details of the observations on colony C may be of interest. For example, one bee was observed fanning vigorously for 7½ minutes (9:53 to 10:00½ A. M., Jan. 23), while the other bees kept a space cleared for it. The temperature of the nearest thermometer rose ½° F. during the time. At 9:52 this thermometer was almost a degree cooler than at the time of greatest heat during the fanning." Think of it! one bee raised the temperature ½ degree; but perhaps the area was very restricted, the thermometer being close to the bee. Or by the fanning the air may have circulated so as to draw increased heat to the thermometer.

EXPANSION OF CLUSTER.

Dr. Gates, on page 17, states: "In watching this colony it was found that the density (and, consequently, the shape) of the cluster varied from day to day. When the air outdoors was warm, the cluster expanded; with cold, it contracted. The expansion usually did not cause the bees to cover more frames, but caused them to cover more completely those frames which they were occupying. Thus the expansion was usually downward toward the bottoms of the frames and in the direction of the entrance. With cold, the bees receded from the bottoms of the frames and from the top-bars."

Let me suggest that the reason why the expansion of the cluster was upward and downward, and not sidewise, is because of our artificial combs built on comb foundation, which does not enable bees to move sidewise to any extent unless the cluster reaches above the top-bar or below the bottom-bar. In my estimation this is a handicap in wintering in modern hives and on straight combs. I should like to see the experiment conducted with box hives where the bees, when left to their own devices, will leave passages in combs so the cluster can expand or contract in every direction without leaving the cluster. The above is also a handicap when the bees want to change places in the cluster, and particularly when there are only a few bees on the outside combs.

On the same page we find "One of the most surprising observations was the apparent interchange of bees from the inside of the cluster with those on the outside of the cluster. As the writer watched the cluster, the head of a bee would gradually appear from below the bees forming the shell of the cluster. Finally this bee emerged, and took her place with the others on the outside. Similarly, bees were frequently seen to disappear into the mass."

I have written about this interchange and pointed out the desirability of having winter passages in straight comb so the change of position could take place freely. I also remember having a colony in a cellar where, by means of the number of bees showing under the bottom-bars, I could tell to a degree the temperature, and I verified this many times that winter, and compared the cluster to the mercury in the thermometer in the influence of temperature upon it.

The bulletins have many records of temperatures; but I have avoided dealing with them, taking only some of the practical conclusions reached. Would that we had the record of more such valuable work!

Brantford, Canada.

"PEACEFUL ROBBING," WITH SOME REMARKS ON COLONY ODOR

BY RALPH C. FISHER

In regard to friend Byer's experiences as given on page 839, Nov. 1, the following will account for the case of robbing that resulted from his feeding bees. The outcome of it is hardly one of unusual character, but, rather, one wherein favorable conditions were inadvertently supplied to an insect always very willing and ever ready to take advantage of them. The season of nectar-gathering had long been past. The bees had taken on a restful mood, or, if you please, were manifesting a real inclination to stay at home. They were thus inactive because of no important duties to perform. A visitor to any apiary on these scattered balmy days, though many bees are on the wing, will hear no industrious roar as when the nectar season is on. It was normally quiet, therefore, when Mr. Byer gave colony No. 8 that heavy feed of sugar syrup. It being a populous colony, the amount of feed large, and perhaps warm, the bees were attracted at once. I venture to say that there was a spasmodic return to general activity the moment bees began forcing their way into the dormant cluster in the brood-chamber. The result is likened unto the city fire department. On the sound of an alarm all is hustle and bustle, but in a systematic manner. There was probably a grand rush of

bees afield to ascertain the whereabouts of so much sweets. At the same moment there was a rush for the feeder. Plenty of feed at this late day certainly creates maximum excitement for the time being. Bees on the wing found the fields dry and dreary, and returned, therefore, only to go out again, then in an hour or so joined the throng making inroads on the feeder. The outward excitement having subsided, the restless thousands became reconciled to the one point of interest.

Thus Mr. Byer transformed his heretofore peaceable colony No. 8 into a teeming mass of robbers. If not the regular orthodox stealing one from another, it was essentially the same to the bees. Then, again, bees having once participated in such wholesale storing of sweets, the event is long remembered, especially by those of an advanced age. Aside from this there are always several members of a normal swarm continually going hither and thither, persistently seeking any sort of sweet that may be had with less effort than going afield. Vigorous colonies light in stores have this habit particularly—a fact easily proven by letting sweets lie about. Exposed sweets mean robbing, and robbing means a world of trouble; and if conditions are peculiarly favorable it means the total destruction of the apiary.

Now, a few days after Mr. Byer fed No. 8 he likewise fed No. 12. As the bees of No. 8 were all too keen for sugar syrup it was the natural course of events for them to seek out and discover the feed on No. 12 hive. Those old bees previously mentioned did the trick.

At the moment the bees of No. 12, with honey-sacs overfull, the brain absolutely excited, nerves all aflutter, the colony became practically the same as No. 8 as to condition. At such moments of excitement, orthodox rules and regulations are immediately discarded. Such colonies maintain an open doorway, so there was no opposition offered the bees of No. 8 when they came to raid the feeder of No. 12. According to impulse both colonies were of the same opinion, and the source of supply so abundant it needed no protection. Robbing bees are always too much inclined to rob rather than to resort to protective methods, and, like human beings of the evil class, strangely submit to one another's company. Mr. Byer rightly terms the episode peaceable robbing.

That night the bees of No. 8 returned home to dream of the fine time they had, and of what they were going to do on the morrow. The nights being quite cool it is very possible the bees of No. 12 became partially if not wholly quiet during those hours, although with minds not unlike those in No. 8, for there were sweets yet in the feeder. However, next morning Mr. Byer removed the feed and feeder on No. 12; and as soon as it warmed up sufficiently activity began, and the loss of the feed became known at once. Consternation prevailed. The bees, being so anxious to steal, started right in to relocate the feeder. They then knew the exact smell of it; and the least aroma of that nature caused them to make a close inspection. Thus there was a second excitement, but of a different character, and bees of both colonies were again doing the same thing.

As before stated, both colonies were in an absolutely abnormal state with all orthodox laws repealed. Thus when the feeder was replaced on No. 8 the bees of No. 12 soon were at work on it through communication —rapidly so, from the result of previous robbing of their own feeder. Another thing, No. 8 had an abundance of unsealed sugar syrup in their combs, and it is very possible the bees of No. 12 discovered it on the day No. 12 was fed. At this juncture a feeder was replaced on No. 12 so that both had feeders. This act would naturally divide the excitement by establishing two points of interest, with the result that both colonies would gradually quiet down. The passing of a night would cause a return to normal conditions—more perfectly so if both feeders became dry at about the same time.

However, one can rightly suppose the bees of No. 8 and No. 12 continued to rob each other to a limited extent for some time. The most remarkable part of the episode is the fact that other colonies in the yard did not seek a hand in the excitement. The bees of No. 8 very probably first discovered the feed through the hole in the gable cover; and when the location of sweets became established they used the entrance at will. Mr. Byer admits No. 8 had been the lightest in stores, therefore more easily incited to rob. The majority of his colonies, amply and naturally provided for, were in a contented condition, with very few bees on the wing, these either playing or carrying water, and not so much inclined to rob.

As to colony odor in this case, the idea is a lost quantity. There is not a single factor in the case to warrant the use of the term. And here it might be said, though bees often manifest evidences of recognition through the influence of odor as regards bees and queens, the use of the term "colony odor" cannot be justified when applied to the

actions of complete or normal colonies. To prove the uselessness of the term, simply exchange frames of sealed or unsealed brood; make colonies queenless; introduce queens; make all sorts of various exchanges, when, in every instance, if odor has any influence over them at all the same will be found to involve singly the bees, the brood, the drones, or the queen. Therefore colony odor has very little to do with the affairs of bees and their habitat.

Philadelphia, Pa.

ANNUAL MEETING OF THE MARITIME BEEKEEPERS' ASSOCIATION

BY E. L. COLPITTS

The annual meeting of the Maritime Beekeepers' Association took place in the board room of the Winter Fair building on Tuesday, December 7. A large number of the members, well representing the maritime beekeepers, were in attendance. More interest was shown than at any previous meeting. The auditor's report showed the association in good financial condition.

Reports of the season from many members were heard with interest. The presence of disease was reported from so many sections that it seems as if American foul brood has established itself already quite extensively in the maritime provinces. The honey crop had been light, clover not yielding in many sections. As far as reported, an average of 75 lbs. per colony was obtained.

J. A. Clarke, Charlottetown, P. E. I.; I. C. Craig, Amherst, N. S.; W. S. Blair, Kentville, N. S.; E. L. Colpitts, Petitcodiac, N. B.; and W. W. Baird, Nappan, N. S., spoke on the prevalence of bee diseases in the maritime provinces. Mr. Sladen, Dominion Apiculturist, had pointed out to the local governments the importance of stamping out American foul brood before it became established. As yet nothing had been done. A resolution was unanimously passed, urging upon the local governments the importance of passing foul-brood acts, and having them enforced by competent inspectors.

W. S. Blair, supt. of the experimental fruit station at Kentville, N. S., spoke at some length on the importance of promoting the beekeeping industry, telling how it could be best done by the different provincial fruit branches. It was decided to present the importance of such a move by the fruit-growers, by sending a representative to each of the fruit-growers' conventions which meet in January. Messrs. W. S. Blair and B. W. Baker were appointed as representatives to attend the Nova Scotia fruit-growers' convention at Kentville, and E. L. Colpitts was appointed representative to attend the convention of the New Brunswick fruit-growers at Fredericton.

The following officers were elected for the ensuing year:

President, B. W. Baker, Amherst, N. S.

Vice-president, W. B. Wallace, Newport Landing, N. S.

Sec'y-Treasurer, E. D. Craig, Nappan, N. S.

Vice-president for Nova Scotia, Knox M. Lodge, Mapleton, N. S.

Vice-president for New Brunswick, W. G. Asbell, Sussex.

Vice-president for Prince Edward Island, H. Newson, Charlottetown.

Auditors, W. W. Baird, Nappan, N. S., and W. G. Asbell, Sussex, N. B.

Standing committee on exhibitions and prize lists, E. L. Colpitts, Petitcodiac, N. B.; G. W. Chappell, Amherst, N. S., and W. N. Tanton, Charlottetown, P. E. I.

Petitcodiac, N. B.

BEEKEEPING IN SOUTHEAST OKLAHOMA

BY FRED MYERS

Here in southeast Oklahoma we have, I suppose, a good average location for beekeeping; but it will be better when fully opened up and cultivated in the crops that should be raised Along Red River (the line between Texas and Oklahoma), lying east and west, is a strip of black prairie land, rocky in spots. There are some good farms, and on many of them alfalfa is being sown. Adjoining this on the north is rolling sandy timbered land, reasonably productive, with freestone water a few feet below the surface. On the whole it is a very nice-looking place to those hunting a location in the Southland.

But the country has been hard hit by the

present low price of cotton, which too many have been engaged in raising, instead of in giving more attention to food and feed crops, and orchards with hives scattered among them.

But the people see their mistake, and are casting about for something to add to the income on the farm. With the attention now being given by the United States Department of Agriculture, and all up-to-date farm papers, to both the honeybees and to sweet clover, we expect these to come into their own here and elsewhere.

Few places, I think, have more bees than this, considering the amount of modern equipment to be found here. There are hundreds of colonies in gums and boxes.

Our location is on the edge of the sandy country, so we should get the benefit of both sides. Our greatest discouragement has been the drouths of recent years. Usually the bees can start brood-rearing very early, the alders along the marshy branches furnishing pollen the first of February. The maples soon come into bloom, giving pollen and honey; then fruit-bloom comes in March; following this the black-gum and holly bloom, which yield nectar freely if weather is right—damp and warm; but, of course, we expect weather conditions to interfere with the bees' work so that we get only a part of the benefit of these different sources.

It seems that the greatest need is something to furnish a good flow during midsummer, when we get the fine honey. I am not thoroughly acquainted with every thing upon which the bees depend, but I know cotton here is very uncertain, although extensively cultivated. It will be greatly reduced in acreage hereafter, and we are not sorry, as it is also a scant yielder with us. We have kept bees four years, and had all to learn; hence getting experience has cost us something. But we have always won some profit above yearly expenses, besides having honey for the home table. This alone is compensation for the work with bees. What kind of beekeeper would one be if he were not a honey-eater?

I also won both first premiums last year at our county fair for best comb and extracted honey. Besides, I may mention, but will not attempt to describe, the pleasures of beekeeping.

Recent articles in GLEANINGS on new principles in hive methods, etc., have been interesting reading, as we have been thinking of the possibilities of a larger hive; but the wintering problem is no argument with us.

Our ten-frame hives we think are hard to beat. We use supers the same depth, all frames alike. We put full sheets of light brood foundation in these by the melted-wax one-fourth-rosin method. This does not fill the frame; but with proper management we get good combs joined all around, with not too much drone comb.

I am convinced the drones are of much more value than they are usually credited with, for this reason: We select males in improving anything else, and get the desired results, giving a large share of the honors to them; but with either good or bad results from queens, the drones, or male bees, are forgotten usually. Should we not at least divide the honors with them?

For fastening in foundation I use a china cream-pitcher, and think nothing is better than one holding about a pint. We set this on a warm stove with a paper-covered table near, having on it a pile of frames and some empty hive-bodies to receive frames when filled with foundation.

Taking a sheet of foundation I place it in the center of the top-bar of the frame which is held bottom upward with the further end highest, so the stream of melted wax will run freely along the edge of the foundation, fastening it to the bar. I then change the ends of the frame and wax the other side of the foundation the same way. These frames are not wired, and do not need to be. I work all best combs into brood-chambers.

Valliant, Okla.

Francois Huber

BY GRACE ALLEN

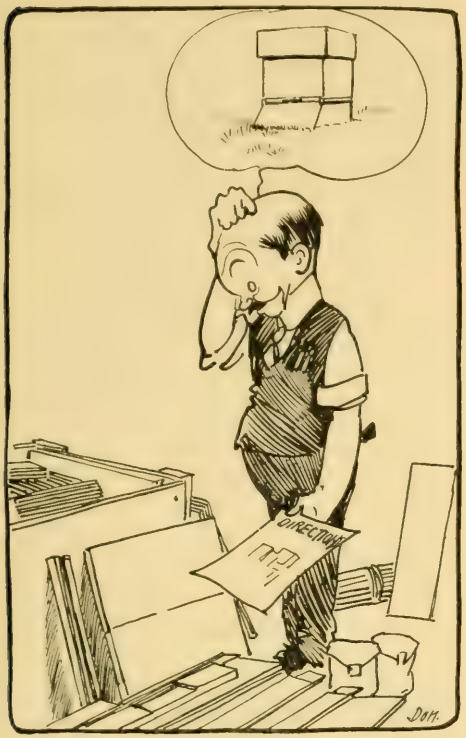
Brave? Who's brave? Have you heard of Huber,
Brave blind Huber, there among his bees,
Delving in their mysteries, searching out their secrets,
Seeing countless hidden things that only spirit sees?

"Blind? What's 'blind'?" cried the young stricken Huber.
"Nevermore to see!" moaned his fast-failing sight.
"Always I shall see!" answered Francois Huber,
"Never, oh! never, need a soul lose its sight!"

He wedded with Love; Devotion was his servant;
These two looked and told him what they saw,
Offered him facts, and Huber's clear vision
Gave back truth, gave back law.

Blind? Who's blind? Not a man like Huber!
Soul looking forth through its own white light;
Give us, O God, men as clear-eyed as Huber,
With vision as sure as this blind man's sight!

Heads of Grain from Different Fields



The Backlot Buzzer

You can just bet a big red apple that anybody who is fortunate enough to be nailing ten-frame dovetailed hives together these long winter evenings isn't going to lose any time playing peanuckle and dominoes.

Missouri State Convention Report

It may interest many of the readers of GLEANINGS to know about the Missouri State beekeepers' meeting held at St. Joseph. In many respects it was the best meeting the writer has ever attended. We had visitors from Indiana, Illinois, Iowa, and quite a number from Kansas. Mr. N. M. Jennings, Franklin, Ind., gave a good talk on wintering; and Frank C. Pellett, Atlantic, Iowa, one on preparing bees for winter, that was most efficient. Then of those of Kansas was Dr. Boher, a man 84 years young, and quite a number of others whose names we do not now recall; also M. G. Dadant and Mrs. H. C. Holmes, Belle View, Ill., and our own beekeepers from Missouri. We had a good attendance and an attentive audience.

We wish to mention Dr. C. R. Woodson, a man of large stature and extensive practice, and who is also interested in horticulture, who gave a most interesting talk on spraying. He fully agreed with beekeepers not to spray during bloom, as also did our Dr. Haseman, of the experiment station, an entomologist. It would take too much space to state all the good things we had.

It was decided to reorganize, and change the name to the Missouri Beekeepers' Society, and to incorporate. We hope thus to reach more beekeepers, and to accomplish more for beekeeping in the State. We will also try again to get an amendment to our foul-brood law to make possible deputy inspectors. The necessity for deputies was quite apparent, as our present inspector had a long spell of sickness the past summer, and right in the time when the work was needed the most. We are sure that much more work can be accomplished by deputies, even if we do not secure any more appropriation, as deputies can be on the spot all the time, so that the inspector will not have to travel all over the State to reach the work. The deputies are to be under his control. We tried for this two years ago, and our amendment went through the senate with only one dissenting vote, and lacked one vote of a constitutional majority in the house of representatives. We feel that we can get what we want this time. It is surely needed if we are ever to get control of foul brood in our State. We now have a good foul-brood law, except that we need more help. Deputies, we think, will do the work, or at least much more than any one man is able to accomplish.

The new officers elected for the coming year are J. W. Rouse, Mexico, President; W. F. Cox, Garden City, Vice-president; J. F. Diemer, Liberty, Treasurer; Austin D. Wolfe, Parkville, Secretary. Mr. Wolfe is connected with the Parkville College; and as he is an ardent Y. M. C. A. man he made arrangements for the beekeepers to take dinner at the Y. M. C. A. building. We certainly had a good dinner and a fine time.

Mexico, Mo. J. W. ROUSE.

What Constitutes an Ideal Wheelbarrow?

There have been many different kinds of vehicles invented and illustrated for handling honey and empty supers about the beeyard; and although a wheelbarrow seems to be the favorite with most beekeepers, I have not yet seen one illustrated that would suit me. Most people think all wheelbarrows must have the front slanting forward; but that is where mine differs from all other so-called handy barrows for a beeyard. I made mine 20 inches wide at the narrowest part of the bottom, and long enough to take three eight-frame hives, and the front is square from the bottom, so the hives will all stand on top of one another, and have no tendency to slip out of place, and that is quite a consideration when bees are inclined to rob. I can take nine empty supers in one load; but when I am taking honey in I place the hives lengthwise of the barrow so the combs will not have any tendency to crowd to one side. There is a shelf on the front for the smoker above the wheel, and a narrow box or pocket between the handles to catch any small bits of comb or wax. The front is made high enough so it will catch the third super, say about 22 inches.

REPORTS WANTED CONCERNING VENTILATED BEE ESCAPE BOARDS.

There is one thing I should like to get a number of reports on, and that is the ventilated bee-escapes, as to whether they work quicker or not. I made a lot last season, but the season was so poor I should not like to pass an opinion on the escape. The ventilating part is all right, but will they work as quick? I have my doubts; but I should like to hear from those who have given them a fair trial.

A WORD OF APPRECIATION FOR THE INDEX.

I can't help writing a few lines of appreciation for the GLEANINGS index for 1914. It is a pleasure to hunt up any article in this index. For the last several years I hated this job; for with the index as arranged it was a good deal like hunting something out of a barrel. I have many times

thought of trying to get you to change to the present form, but I didn't want to be called a chronic kicker. There is only one thing worse than the old index, and that is no index at all.

I have been shining as a kicker against our *Canadian Horticulturist and Beekeeper*, as the publishers refuse to print an index. It certainly reduces the value of any journal to be without an index. I know in my case I have many times wanted to look up information on a certain point, and have taken down 15 or 20 journals (I bind all mine), and it is wonderful the amount of information a person can get by just looking at an index.

Forest, Ont. I. LANGSTROTH.

Decoy Hives in Rhode Island

I was very much interested in the article relative to decoy hives by our good friend Dr. A. F. Bonney, published in the *American Bee Journal* some months ago, so I decided to try the plan. I procured at a local grocery a dozen wooden boxes about the size of a hive. I tacked in some slats to act as frames, and to one I tied a piece of comb.

I made an entrance at one end about one inch by eight, and made a door that would close down over the entrance, as indicated by the doctor's drawing in the article. To keep out rain and dampness I tacked a piece of cheap enamel cloth on top of each box, and tied on the cover with strings.

As there is a great risk that each box may not catch a swarm, or may even be stolen, one has to try every way to make the expense as light as possible.

Several of these boxes were placed in the crotches of apple-trees. One was placed on top of a ledge of rock; another in what was once a window in the ruins of an old stone mill; a third in a pine tree; and, the last of all, on a partly tumbled-down chimney where a farmhouse once stood. In fact, all of these boxes were set in the country, and mostly on deserted farms.

Bee-hunters are quite plentiful through the country districts of Rhode Island, hence setting bee-boxes is a little risky. Even though the owner's name may be on the box, it is not always respected, because a colony of bees that costs nothing is usually very acceptable to almost any one.

Of the twelve boxes that I put out, the one placed on the tumbled-down chimney did the trick and captured my only swarm. Last spring bees did not swarm very much in the country districts of Rhode Island. One man whom I know has eleven colonies of bees in the old-fashioned box hives, and had only three swarms before the first of July, while the others swarmed later on. One of the best bee-hunters in the State informed me that he and his companion have located only four this year, while they located ten last year. In fact, I am of the belief that here in New England wild or escaped bees are growing scarce.

From my experience in setting bee-boxes, I do not think it pays here. I also believe that a box, to have any chance of catching a swarm, must be set in a very conspicuous place. Then in such a place others may appropriate the good luck before the owner does.

Providence, R. I. GARDENER B. WILLIS.

Bees Plug the Horizontal Openings in the Top-bars with Wax

The letter on page 1000, suggesting horizontal openings through the top-bars for winter passages for the bees, reminds me of some experiments that my father, the late S. T. Pettit, tried many years ago. I can still remember seeing combs in the brood-chambers with these holes through the top-bars securely and hermetically sealed by the bees with wax. When friend Bordon tries out his idea he will find that the bees will wax up the openings, and I imagine he will decide that other ways to provide the winter passage are better.

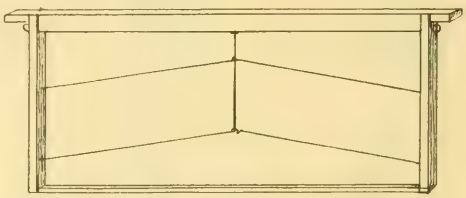
Another method that S. T. Pettit had in making winter passages was to bore through all the combs of the brood-chamber in one operation by means of an iron rod heated in a kettle of boiling water. One of my earliest recollections is having to sit beside the hive, holding a form while he bored through with this instrument. Holes were placed in the sides of the hive and kept plugged except when the combs were to be bored out the last thing before the bees went into winter quarters.

I do not think that any thing will take the place of the Hill device or some similar arrangement which gives a passage across the top-bars.

Guelph, Canada, Dec. 28. MORLEY PETTIT.

Plan for Fastening Foundation

I notice in GLEANINGS, 1913, page 799, H. H. Root's plan for fastening foundation in frames, which is surely good; but I do not understand why he wants the lower wire to curve upward. Here in Texas we use two wires where four holes are already punched. We put one wire in the second hole from the top and the other in the fourth hole, as



shown in the diagram, and then with short pieces of wire wrap one end two or three times around a tack and drive it about the middle of the top-bar. We pull the horizontal wire tight in the middle and wrap the wire around. Next we tighten the second wire and wrap the end of the short wire around it. It surely will not sag nor buckle. Instead of a tack we sometimes wrap the wire around the top-bar.

Angelita, Texas. J. S. WHITE.

Who Should Worry over the Net-weight Law?

I have just read with considerable interest the editorial, page 921, Dec. 1, on the net-weight law as applied to comb honey. My inference is that it would make no difference whether the section was weighed in or out. A practical beekeeper or honey jobber isn't going to mark the *exact* weight on each comb, is he? Is it necessary to mark the maximum weight on each section of honey? Why not grade the honey as formerly, and, when cased, stamp each section alike with the minimum weight, say 10 or 12 or 14 oz.? Suppose there was not a section in the 10-oz. case that weighed less than 14 ounces. Whose business would it be if we gave the customer 4 ounces more honey?

I spent three weeks recently selling extracted honey to dealers in eastern North Dakota and western Minnesota. I had the opportunity of seeing several hundred cases of comb honey in the hands of dealers there, and I gave it some attention. One producer marked with a pencil; some more had "not less than 12 oz;" but the concern that supplied most of the comb honey in this section had each comb stamped the same, "Not less than 10 oz."

If this fills the letter of the law, why worry over the weight? This was all nice honey, and probably weighed 14 or more ounces, with a few exceptions. Now and then a case had some thin combs, probably 11 oz. Under our standard grading we would grade this out; but under this plan of weighing we would not need to. This net-weight law is supposed

to be something for the consumer, is it not? In this particular case it would look as though these law-makers had handed us another chestnut.

Smithland, Ia. B. A. ALDRICH.

Massachusetts Meeting

The recently organized Massachusetts Society of Beekeepers held its monthly meeting on Saturday, Dec. 19, at 28 School St., Boston. The speaker was Hon. George F. French, of the Federal Department of Agriculture, Washington, D. C., who spoke on the profits Massachusetts has in honey production. The speaker brought out how the beekeepers could bring Massachusetts to the front line as a honey-producing section.

Ten new names were added to the membership list. The next meeting will be held in January at the call of the secretary.

Rutland, Mass., Dec. 23. P. D. HANSON, Sec.

Treating Foul Brood in the Winter

We have two colonies of bees that we think have foul brood. They cannot be treated now. What can we do to save the bees over winter?

Massillon, Ohio. F. G. KAUFMAN.

[The only thing that you can do is to see to it that they have plenty of stores to carry them through, and that they are comfortably packed. Treatment should be given as soon as settled warm weather sets in. If they were bad with foul brood last fall it is very probable that they will die out before spring. Care should be exercised that the honey be not robbed out by healthy colonies during the first flying days.—ED.]

Queens above Excluder

Having noticed of late that several writers for bee-journals have been discussing the raising of queens above an excluder, without arriving at a settled opinion as to the advisability of doing so, I venture to offer my opinion.

A young queen can be reared and fertilized in the second story above the excluder in a strong colony. But, *don't do it*. It does not pay for the trouble. There are too many frames and bees to hunt over; and if by any means you fail to find it at the right time it will take twenty to thirty pounds of honey out of the crop—enough to buy two or three queens without the trouble. I sometimes put a frame of young brood in such a colony, but take care of the queen-cells before the young queens emerge.

La Valle, Wis., Dec. 9. W. L. ROBERTS.

Push-in-Comb Plan of Introducing Commended

Responding to the invitation, page 923, Dec. 1, I wish to add my mite in favor of the push-in-the-comb-cage plan of introducing queens. I have practiced this plan this year, and every year for the last eighteen years. I always recommend this plan to my customers when they ask me for an infallible method of introduction, and I have yet to know or hear of a single failure where this method was used.

I always recommend to my customers that they leave the hive severely alone for a whole week after introducing the queen this way, to give her a chance to get to laying before the bees are disturbed again, as any queen is liable to be balled if disturbed before she gets to laying. I also recommend that the cage be so placed as to include some honey, some hatching bees, and some empty cells for the queen to begin laying in. I do not care whether there are any larvæ enclosed or not.

The only objection I see to sending out instructions to use the push-in-the-comb-cage plan, besides the objection you mention, is that it is more trouble to make the cages than the average beekeeper will take. Sometimes we have orders for 25, 50, or 100 queens. It would be quite a little trouble to make up so many cages; and often the beeman has not the wire cloth handy to make them. Perhaps it is fifteen or twenty miles to the nearest store where the wire cloth can be obtained. In that case the man may be without any information as to how to introduce. Shall we send the wire cloth with the queens?

I have tried the smoke method of introduction. Usually it works. Sometimes it does not, and I don't see why.

Mathis, Texas. H. D. MURRY.

Would See Farmers Keep Bees

In reference to the experiences of J. S. Miles, page 946, Dec. 1, I will say that I see the matter altogether differently. First, the farmer has a right to try his hand at beekeeping, whether for success or failure, and he creates a demand for bee-supplies as well as for honey. For example, last week I sold five gallons of honey to a Mr. Owens to feed his bees, as he had had an off year. Now, Mr. Owens never would have bought five gallons of honey had he not been in the business. The past two years Mr. Owens got considerable honey and sold some to his neighbors, who this year also came to me. He has worked up a market by educating the people to know that honey is pure as well as very healthful, and he had told his neighbors that my honey was pure, and sent them to me. I have sold him the bees and the hive at a small profit. The honey that was gathered would have gone to waste.

Give the farmer a little reading on bees, and tell him by all means to get the good bee-books for information. Give him one about hives and show him how to use foundation, and how to put up honey. Only by attempting the work blindly can real disaster and discouragement result.

Palmetto, Fla. C. H. CLUTE.

Wires Preferred to Splints

P. S. Reaves, page 942, Dec. 1, describes the trouble just as it is here. My bees began to die in the latter part of August. I would find 50 to 150 dead bees, mostly young but perfect, on the alighting-board every morning. At first only one hive was affected; later, others. We had very dry weather here through July and August, and more honey-dew was stored than I ever saw before. Other beekeepers here had the same trouble. It cannot be poison nor any thing gathered; for, if so, all the colonies would be similarly affected. Do you not think so? About one-third of my colonies had the trouble. Nothing that I could find upon examination caused the dying, some having little honey and some plenty.

I have tried the Miller splints to my (dis)satisfaction. Hereafter I shall stick to wiring full sheets. I tried, the past summer, a few frames without grooves or comb-guides or wedges.

I placed the top wire ½ inch below the top-bar; and when fastening foundation I pulled the wire lower ¼ or ½ inch in the center, the second wire the same (as described in instructions sent with foundation). This forces the foundation up against the top-bar, and in every instance the bees fastened it nicely. These frames were put in between built-out combs. Next season I will try with swarms.

Asheville, N. C., Dec. 14. O. BROMFIELD.

More about that Mysterious Trouble

In reply to P. S. Reaves, Princeton, W. Va., page 942, Dec. 1, I will say I have the same trouble he has. I have 26 colonies of bees, and went through them two weeks ago and found honey enough for

the winter, but no brood in any of them. Only a small quantity of bees were living, and they are still dying by the handful. I don't think I shall have a colony left for spring. My apiary is located in the back yard of my lot in the middle of our city, and I have been only five years in the business.

We had such a drouth in this section that there were no blooms for the bees to work upon until late in the fall. There were enough for them to lay up for winter.

East Radford, Va., Dec. 9. R. H. CREASY.

Farmers' Insurance Co. Insures Bees against Fire Loss

I have read the letter of inquiry about bee insurance, page 956, Dec. 1, and your answer that you have been informed that no company will insure bees against loss by fire. We have 170 stands of bees insured for $400 against fire and lightning, in storage and out, by the Farmers' Insurance Co., Cedar Rapids, Ia. The liability is $3.00 per stand in case of loss. There was no trouble about getting it. The agent wrote in for instructions, and permission was given at once.

Turkey River, Ia. L. W. MAXWELL.

Retail Your Own Honey

There is one method of marketing honey that is rarely mentioned in any bee-journal, and I beg to suggest that it be discussed in GLEANINGS in 1915 —that is, the bottling and selling of extracted honey by the producer. Go into groceries where you will, and you see bottles and jars of honey on the shelves. On closer examination you will see "This honey was put up by —— Packing Co., or "Bottled by —— Bottling Co." Why cannot beekeepers supply their local grocers at least, or retail it to the consumers in the nearby towns themselves?

Some beekeepers object, saying that they have not the time to bottle honey; but I know that there must be scores like myself who have but little to do in winter, and many no doubt have a heated workshop or honey-house where the work may be carried on. Surely there must be some who bottle and sell part of their honey in small packages, and I am sure they will be willing to give others some hints on the subject, such as best methods of bottling, selling, etc., and best size of bottle to use.

Every beekeeper who retails his honey should be prepared to furnish honey in any form his customer desires it. Thus, if he produces comb honey only I believe it would pay him to purchase extracted honey from a producer of that article, or exchange with him and *vice versa*. Beekeepers cannot give too much study to the selling of their honey.

Catskill, N. Y., Dec. 28. ELMER W. PALMER.

Beekeepers near Akron, N. Y., Organize

We held our meeting at Akron, N. Y., Dec. 15. The day was rather stormy, and the crowd was not as large as would have been the case had the weather allowed. Those present had an interesting time discussing timely topics.

One member has a trying time every year keeping pollen out of his sections. At first thought it would seem this is a question of carelessness, but not so, as Mr. Sprout is an intelligent beekeeper and not to be misled so easily. He says it bothers him every year from the beginning of the clover flow to the end, in colonies before swarming and after. Young and old seem to make no difference. He uses a frame nearly 12 inches in depth, and hives his swarms on two empty combs, and does not put on supers immediately, but still the trouble is there. If he puts an empty super under a partly filled one, in goes the pollen and sometimes on top. He has tried almost every thing conceivable, even putting drone foundation in sections, but of no avail. Can any of the readers offer a remedy?

A local organization was formed with the following officers: President, John N. DeMuth, Pembroke, N. Y.; Vice-pres., J. Roy Lincoln, Niagara Falls, N. Y.; Sec'y-Treas., William Vollmer, Akron, N. Y.

A summer field meeting was also decided upon.

Akron, N. Y. WILLIAM VOLLMER, Sec.

[Bees are creatures of habit and they must not be allowed to get the habit of placing pollen in the sections. We presume that Mr. Sprout recognizes this fact and that he has done all in his power to prevent them from doing so. An occasional cell of pollen in comb honey seems inevitable, but if there are combs containing some pollen at each side of the brood-chamber with plenty of empty cells for more, the trouble is not likely to be serious.

Some have used a queen-excluder which also serves as a pollen-excluder usually, but if possible the situation should be controlled in some other way.—ED.]

What to do when a Swarm Issues

When running for comb honey, no matter how much room or ventilation is given the colonies, some will swarm. This is my way of treating them. I watch at the entrance for the queen (of course I have the queens clipped); and then I cage her and lay the cage at the entrance of the hive that the bees came from. Then while the swarm is in the air I go through the hive and cut out the queen-cells. At the beginning of the season I put back four or five frames of brood in an eight-frame hive, and fill the rest of the space with full sheets of foundation. At the latter part of the season I put back six or seven frames of brood, filling up with full sheets of foundation. About the time I get through the colony the swarm will return. When the bees are about half in I let the queen run in with them. The brood that is taken away from such colonies is given to weak colonies.

Juda, Wis., Dec. 8. JAMES D. BENSON.

Ames Bottom-board for Four Hives Faulty

The Ames bottom-board, p. 889, Nov. 15, is faulty in this respect: When the colonies are very strong, the weather very hot, and a sudden check occurs in the honey, the bees from the south hives will often get up a nice scrap with their north neighbors, and a lot of dead bees will be the result; then when young queens are mating they too often return to the wrong hive. Now, if he will tack the cleats on the bottom of the hive with short nails so they can be easily removed, he can, when he takes off the winter case, move the hives to the extreme ends of the bottom-board and place a wide shingle on edge next to the north hive, and have things more harmonious. I have been through the mill.

SUBSCRIBER.

A Beekeeper who has not Walked for nearly 40 Years

I am 43 years of age, and I have not walked for nearly 40 years. I was stricken with infantile paralysis in both feet and legs in 1876 when I was five years old, and have never walked since. My feet and legs are very small. I cross my legs by laying one foot on one thigh and the other on the other. I have leather pads filled to put on to crawl on, and also leather slippers, as I call them, for my hands. I am strong in my arms and body, and crawl about my little apiary and shop, which is also my honey-house, and work with my 43 colonies.

When I was 17 years old I crawled half a mile to hive my first swarm.

Woolwine, Va. JESSE G. COCKRAM.

A. I. Root **OUR HOMES** Editor

ROBBING SICK PEOPLE; GYMNASTICS IN THE GARDEN, ETC.

I think most of our readers have seen advertisements of wonderful things for the cure of sick or ailing people in the shape of treatment by mail, correspondence schools, and other things along that line. From the very first I have been suspicious of some correspondence schools;* and I have invested money in them in order to find out how they work. I have already mentioned the one for the cure of failing memory. A great doctor made wonderful promises about treating each case individually. I think his price was $20.00 for the whole course. If you did not "bite" at the $20.00 tuition, after a week or two come particular reasons why he has come down to $10.00. If you do not jump at the reduced offer, a few weeks later the price is reduced from $10.00 to $5.00; and I do not know but they come down still lower later on. One of our subscribers bit at the bait, and sent me the whole course of treatment. Instead of its being a personal letter for the particular individual, it was simply a lot of printed sheets that, even if they were of any benefit, could be furnished for 25 cents. There was hardly a new suggestion, nor any thing that has not been known for years.

Some time last spring I saw an advertisement of a course of instruction in massage, or something of that sort. It was a way of developing the muscles wonderfully, accompanied with a picture of a model athlete. As I have been for some time curious about such a treatment I sent for particulars. It did not impress me very favorably, although the writer laid strong emphasis on sending the money back if the customer was not perfectly satisfied. He said Uncle Sam would not *permit* him to use the mails if he did not "make good" all his promises. I hope the above is true; but if it is, it is news to me. Well, I laid his papers aside; but in the course of a month or so he wrote that he had been anxious about my case, and wanted to know why he did not hear from me, offering to cut the price down to $10.00 for an immediate reply. I then wrote that there was no need of sending me any more "form letters;" but if he wanted to send me the treatment, and it proved to be of any benefit to me whatever, I would forward the $10.00, referring him to Dun and Bradstreet for my standing, also mentioning the fact that I did not find *him* quoted at all. For the first time I got a *real letter;* but I *may* have been fooled even then. He said that doctors like himself are not quoted by Dun and Bradstreet, and the only way he did business was to have cash in advance. I supposed this would end the matter; but in a few days came another form letter, skillfully planned, to make it appear like a personal one to myself, saying so many of his friends had told him how much *good* he could do by reducing the price still further he had decided to offer the whole treatment for the next ten days for the ridiculously small sum of $5.00. I especially wanted to see if the money was coming back promptly if I felt I had received no benefit, or if I were not perfectly satisfied with the investment. Now, right here comes in a "kink" that I had not thought of. The full treatment to be gone through with night and morning is for 90 days. Well, my opinion is that the average person would become so tired of the "gymnastics" before the 90 mornings or 90 days were over, that he would be likely to be willing to let his $5.00 go rather than to keep on. The conditions were that you follow the treatment faithfully; and I have enough confidence in humanity to think that there are very few who would declare they had kept it up nights and mornings for 90 days when they had not done so. Regularly every week so far comes a form letter giving additional information. Now comes the question, "Have I not received some benefit?" Yes, I think I have; however, very little of the instruction was new to me. The course of gymnastics in our schools amounts to about the same thing. For a person who is kept in an office all day, and does not have sufficient exercise outdoors, there would, no doubt, be much benefit from it. For instance, one of the latest exercises is to sit down on your toes and then straighten up, say a dozen times or more, providing you do not get *too* tired. This is all right and good; but one who works in a garden has about enough of it in picking strawberries, beans, etc., without having the same thing to do night and morning; and I am inclined to think the vigorous use of a hoe, night and morning, would develop the muscles in the arms about as well as the gymnastics, and something would be *accomplished* instead of just swinging your arms like Don Quixote's windmill. This treatment is certainly far more commendable than the advertisers who doctor with drugs and new-fangled medicines. It cannot do you any harm, even if it does not

* Some are good and are operating on the right lines. With these I have no quarrel.

do you any good; and I have heard it urged that, unless you pay five, ten, or twenty dollars you may not take the pains to carry out the treatment. This may be true; but it is a rather sad reflection on humanity. The principal thing I object to is the practice of having form letters printed in such manner as to appear as having been typewritten. The *Sunday School Times* says deception is *always wrong;* and the Bible says so too, but perhaps not in just so many words. Now, these form letters, skillfully planned to make you believe the great doctor has actually written to you, having nobody else in mind, are, in my opinion, mailed with the purpose to deceive. Several times lately I have carried such letters to our Mr. Boyden, who is an expert along this line, and asked him if the letter in my hand was printed or written; and sometimes it bothers even him to tell. The "A. I. Root, Medina, O.," is unquestionably put on with a typewriter; but the shade of ink agrees so perfectly with the body of the letter that it is hard to determine. While I severely censure this form of deception I am well aware that some of our religious denominations are making use of this scheme.

Some of my friends think I am too severe, and suggest that people will take more pains to read a *letter* than they would a printed leaflet. Even if this is true, I am sure that in the long run it *pays to be strictly honest.* It is well enough to use every honest means to attract attention and to get people to read what you want them to know; but is it not very much better to avoid deception of any kind—to avoid even the *appearance* of evil, as we have it in the good book?

Last, but not least, is it honest to take $20.00 for something you have to sell if you can, then wait a while and start up some excuse for offering the same thing for $5.00 or even less? My oldest granddaughter, who is just now at school in Oberlin, tells me, in talking over the matter, that one of the text-books in their school warns the public against quack doctors who advertise "treatment" for $20.00, then $10.00, then $5.00, and so. Is it *honest* to take $20.00 from unsuspicious and confiding people, and then let others have the same thing for $10.00 or even $5.00?

In conclusion, let me ask once more, are these persons and firms who are attempting to obtain your money by mailing these form letters to you in the manner above set forth any better than pickpockets in general? I think not. Call your family physician (your neighbor and one whom you *know*), when you are ailing, and get his advice. I always tell our doctor I would much rather pay him for *advice* than for medicine. Far better give your money to honest men whom you have known for years than to hand it over to pickpockets.

I forgot to mention that the instruction is to finish up with a sponge bath after each course of gymnastics. Now you can all have the benefit of it, *without* paying twenty, ten, nor even five dollars. Oftentimes I feel too tired to go through my exercises before retiring; but after I have thrashed about and got well warmed up, and perhaps a little tired, and then wind up by rubbing myself with my wet hands all over my body, and getting scrubbed off with a towel, I feel tiptop. In the morning our bathroom is generally a little cold, and oftentimes I feel reluctant about taking a sponge bath. Well, after the exercises it is just fun to wash all over, as I have recently described, then have a good rubbing with a towel. Then I do not mind the cold a bit.

"OXYPATHY" FINALLY GETTING ITS JUST DUES.

See below, clipped from the *Rural* of Nov. 28:

"OXYPATHY" FINALLLY GETTING ITS JUST DUES.

The oxypathor has at last been adjudged a fraud by a court of law. The Federal court at Rutland, Vermont, found the manager of the Oxypathor Company, of Buffalo, N. Y., guilty of using the mails to defraud, and he received a sentence of 18 months in the Federal prison at Atlanta, Ga. This scheme seemed to have been operated by several companies which controlled certain territory. Besides the one in Buffalo there was one in New York city, which was driven out of business some time back by the Vigilance Committee of the Advertising Men's League. There was also one in Chicago, and another operated at one time from some point in Pennsylvania.

The oxypathor is a small box filled with sawdust and some other inert matter. It is provided with a cord at each end; and the patient was to attach one string to his head and the other to his feet. The claims were that this would cause an extra amount of oxygen to be forced into the blood, and that a cure would follow. Doctors and chemists who examined the box and analyzed its contents invariably asserted that the matter was inert, and could have no physical effect whatever on the patient. The cost of the instrument was $35.00. They were sometimes sold under guarantee; but we were never able to get the cash returned. We exposed it several times in the past, but the advertisements appeared quite regularly in papers of high and low degree.

COMING TO FLORIDA TO SPEND THE WINTER, ETC.

As I have been having quite a number of letters of late, similar to the one below, I submit this one with the answer I have penned on a postal card.

A. I. Root:—Having learned through GLEANINGS of your making your home in Florida during the

winter months, and that possibly you have some knowledge of that State, I would ask:

Would you advise a young man to go to Florida to spend the winter?

Which part of the State is best as regards climate? Are the people Christians? Is there any work?

About what would it cost to go and spend a winter there?

I will give you in short some information as to myself. I am twenty-three years old; was raised on the farm, free from any appetite for liquor or tobacco, and can give reference as to my character, such as The Farmers and Merchants Bank, Winchester, Ind., and as many more as you would want.

Winchester, Ind. ALVA O. WEIMER.

I would not on general principles advise a young man to come to Florida now, with a view of getting work. The war has hurt us in two ways—cut off potash for fertilizer, and cut off the market for cotton. The climate is desirable here because there is seldom any killing frost. There is also a large body of nice Christian people here. A trip here and back would cost you toward $50.00, and board toward $1.00 a day. You can, however, rent a room, or even live in a tent, and save a lot. If you have no trouble in getting work where you are, you might be able to find a job here. Handy skilled men are always wanted almost everywhere. A. I. ROOT.

In answering the above I realize most vividly how hard it is to give advice to one we do not know. One who is never at a loss for something to do, and one who delights in helping the *world* along, will find great opportunities here in Florida; but one who depends on some one else to find him a job, and who is for the most part planning only for *self*, had better not come here, or, I almost said, *go anywhere*. He had better stay where his neighbors and relations can look after him. One who is expert in *making things grow*, and who can, by watching experts, learn to get like results, will find this a grand place to work and study. I would, however, advise such a one to have a little money ahead, for he may have to take time and expense before he begins to get returns. Go over my talks in this department for the last four or five years before you start out and you will find it a *good investment*.

HIGH-PRESSURE GARDENING

CASSAVA; NOT ONLY GOOD FOR "CHICKENS" BUT ALSO FOR FOLKS.

A year ago, when we reached our Florida home about Nov. 1, I mentioned asking Wesley how those big spreading trees came right in a prominent place in our garden; and when he replied it was the cassava I could hardly believe all that growth had come from the little sprouts just peeping out of the ground six months before. Well, after giving some of the roots to the chickens I became so enthused that we used all our spare wood for making cuttings; and when we left Florida, the last of April, we had planted two beds, perhaps 200 feet long by about 10 feet wide. I have told you how we sawed up the branches into pieces about as long as corncobs, and placed them close together in a "cutting-bed" until they started to grow. When each one had sent up a little shoot they were planted in the long beds four feet apart, making three rows—one down the middle and one on each side. Well, when we got here again in the fall I had another "happy surprise"—two beautiful *groves* of bright-green thrifty-looking trees with scarcely a failure. One of these beds was on the poorest dry sandy spot we have on the premises, and I told Wesley I felt sure the cassava wouldn't amount to any thing, as we had tried different stuff, and every year it was "no good." He declared, however, cassava did best on poor sandy land, well drained, and there was a deep ditch right close to the fence, for carrying off the storm water. Before setting the plants we did give the bed a little poultry manure and some fertilizer right in the furrow when the cuttings were planted. The little trees soon shaded the ground so that very little cultivation was needed.

About the middle of December I decided to use the bed where my first cassava-trees grew—the ones that had been growing two summers, and told Wesley to give the roots to the chickens and forgot all about it. As he started home at night he was eating something that looked like a big peeled turnip. It was a slice from one of the cassava roots.

"Why, Wesley, is that good to eat raw?"

"Sure! and it is good to eat baked, just as you bake potatoes. Try some and see."

Now, the government bulletin says that, while the two-year-old roots are much larger, they are not as sweet and tender for stock as those of only one summer's growth. I went and looked at the root where Wesley got his "slice," and it was bigger and longer than my leg. I got the ax and supposed it would take quite a blow to sever the root; but the ax went through and down into the ground, as the tuber was so tender and brittle. It took quite a while to bake; but I was rejoiced to find it a nutritious and quite delicious food. Mrs. Root, however, doesn't quite agree with me. She says I always like *any* thing new; and perhaps it *is* true that I always rejoice in finding something I had never come across before in the

way of "God's gifts."* With the ax I cut from the root (it was five inches in diameter and weighed 18 lbs.) several cylinders and stood one on end in the chicken-yard. Passing there half an hour later it had disappeared. I gave them another, and pretty soon the ducks came up from the canal and there was quite a noisy combat as to who had the "best right" to the new delicacy.

Well, if cassava will take the place of corn for ducks, or even partially replace corn, at 35 cts. a dozen for duck eggs (hens' eggs are 45), we shall have a bonanza here in Florida.†

Now, the above isn't *all* of my story. The cassava-tree that had grown two summers had three other roots, for there was a cluster of them, though not as large, and several roots were taken from it when it had grown only one summer. If you want to know more about cassava, send to the Department of Agriculture for a bulletin. See page 280, April 1, 1914, in regard to cassava as a food product.

GOLDEN APPLES AND DELICIOUS APPLES FROM OHIO TO FLORIDA BY PARCEL POST.

Prof. W. J. Green, of the Ohio Experiment Station (a lifetime friend) was kind enough to send us half a peck each of two noted apples by parcel post. When our Ohio station was established in Wayne Co. years ago they took an old run-down orchard and made it a wonderful object-lesson for rising generations. By trimming, fertilizing, and grafting, they have not only made it "a thing of beauty" but it *almost* promises to be "a joy for ever."‡ In the nearby zones such apples by mail may be, without question, a big success. Below is what I wrote friend Green:

Friend Green:—Many thanks for the beautiful apples you have so kindly sent me. They are not only beautiful to look at, but the finest-flavored apples, I do believe, I ever tasted. If the postage were not so much this long distance there would certainly be a great opening for apples by parcel post. The "container" you used brought them in splendid condition. Not an apple was bruised or injured in any way. The "Delicious" apples *you send* are certainly *more* delicious than the samples sent me some time ago by the Stark people in Missouri; and the Grimes Golden, even Mrs. Root admitted were pretty near the best apple she ever tasted. The postage on the Grimes was about 2 cts. on each apple; the Delicious, on account of its size, about 3 cts.

Bradentown, Fla., Dec. 17. A. I. ROOT.

* Mrs. Root came to me later with a slice of raw cassava and a sprinkling of salt, and she said she was surprised to find it so good.

† After giving the ducks all they wanted we got 9 eggs from 12 ducks next morning.

‡ If I am not mistaken it has been claimed our Ohio hills produce *better-flavored apples* than any of the fancy apples from the far West.

A REAL "DUTCH CHEESE" FROM A REAL "DUTCH FARMER."

I am sure the following will be read with much interest, especially as it comes from a point so near the seat of war:



Mr. A. I. Root:—Your dasheen bulbs came July 22. I am sorry to say that the most of them were rotted. The rest I planted, but they are rotten also in the ground. Notwithstanding this, I thank you very much for your kindly deed, and I am sending to you with this letter a real Dutch cheese, a so-called Edam cheese. I hope you may receive this cheese in good order. I read in GLEANINGS that you like cheese very much, and therefore I wanted you to have a real "Dutch cheese."

We have here in the Old World a bad time; yet Holland is at this time neutral. My wife is gathering gifts here in our village for the poor Belgian children and women who are leaving their country and coming to Holland to save their lives.

I send you a small portrait of myself in order that you may see if I am a *real* "Dutch farmer."

Oosterleek, Netherlands, Oct. 5. P. BALK.

It would seem from the above that it is rather uncertain about getting dasheen bulbs to stand so long a trip. The cheese, however, came to hand by mail in perfect order; and if it were not for the fact that *Mrs. Root* objects, I think I should say it is "the nicest cheese I ever tasted." I do not believe we make any thing equal to it here in America, and I fear we do not often get from the old country any thing equal to this sample. May God bless the good wife and all other good wives, wherever they live, in their efforts to give at least a little help to the poor suffering Belgian women and children

SWEET CLOVER, AND WHAT IT IS DOING FOR A MOUNTAIN-RANCH FARMER.

We clip the following from the *Country Gentleman* of December 26, 1914:

On a farm at the foot of a mountain one must expect to find some rough land. Rush has forty acres to be so classed. It is sharply sloping land, somewhat rocky, cut by gullies, and, in spite of all his efforts, overlaid after freshets with rocky streaks. He determined to put this stretch into alfalfa.

Being ignorant of bacterial re-enforcement of his seed he did not secure a good stand. His alfalfa plants were individually strong enough, but they were far apart in location and endowed with a perversity to creep along on the ground. They did well enough for limited pasturage, but furnished not even one cutting of hay.

"The spring following planting I discovered in the middle of my alfalfa patch a strange growth," he told me. "I did not know what it was. I did not know whence it came. It looked like alfalfa, although of rounder leaf and a lighter green. The seed, I concluded, had smuggled itself into my pur-

chased bag. The plant throve when the alfalfa all about it was blighted or afflicted with the 'yellows.' I determined to let it grow. I would see what would come of it.

"The next year quite a patch of this plant appeared in my field. This was a very dry year, but this patch remained green the year through. I decided to have the plant classified for me. 'Sweet clover!' I knew of the existence of such a pest. I was for rooting it out, smiting it hip and thigh. But I observed that my saddle pony was not above eating it. I did not have any very high opinion of that animal. I did not care particularly what became of him. If he was poisoned or bloated by the sweet clover I was prepared to take the affliction with equanimity.

"He throve on it. He preferred it even to alfalfa. This gave me an idea. Perhaps I could teach my other animals to like it. I succeeded. The sweet clover covered the patch of forty acres. As you see, I have so much of it that I can hardly keep it cut and stacked. It makes excellent pasturage and good hay. I cut and cure it precisely as one would deal with alfalfa. I do not have to irrigate it. Thus I save for other things what water I have. It holds my soil from washing away. It appears to thrive best of all among the rocks that have tumbled down the mountain-side.

"To me the best thing about it is its action on alfalfa and alfalfa's reaction on it. Sweet clover strengthens alfalfa. It prepares the ground for alfalfa. In a pasture made up of about equal parts of sweet clover and alfalfa one may safely let his cows and sheep roam. The coumarin in the clover prevents bloating by the alfalfa. Moreover, when I was teaching my stock to eat the clover I fed the alfalfa with it. They would devour the alfalfa greedily, of course, and now and again would come upon a bunch of the clover. Thus they acquired the taste. Now they will sometimes thrust aside the alfalfa to get at the clover.

"And I have discovered another thing: If one has a good stand of alfalfa, that is just the chance for one to get a good stand of sweet clover. The one inoculates the other. The reverse is true as well. One may secure a good stand of alfalfa on a field where sweet clover has grown even sparsely. This despised plant thus became to me a blessing. Again I learned the benefit to a farmer of just making the best of the thing nearest at hand."

TEMPERANCE

"THE CASE AGAINST THE LITTLE WHITE SLAVER," THE AMERICAN TOBACCO CO., ETC.

I presume every one who reads knows somewhat of the stand Edison and Ford* have taken in regard to the use of cigarettes among their employees; and perhaps many have also seen what the American Tobacco Co. has said in defense of cigarettes. The matter has called up so much interest that Mr. Ford has sent out a pamphlet of toward 40 pages from which I make the following extracts:

MR. EDISON'S LETTER
FROM THE LABORATORY OF THOMAS A. EDISON,
ORANGE, N. J., APRIL 26, 1914.

Friend Ford:—The injurious agent in cigarettes comes principally from the burning paper wrapper. The substance thereby formed is called "acrolein." It has a violent action on the nerve centers, producing degeneration of the cells of the brain, which is quite rapid among boys. Unlike most narcotics this degeneration is permanent and uncontrollable. I employ no person who smokes cigarettes.

THOS. A. EDISON.

Below we give part of a paragraph from a long letter from the president of the American Tobacco Co.:

Unquestionably the cigarette is the favorite smoke of doctors in every city and large town throughout the country. Preachers, lawyers, bankers, business men, laboring men, and men of all classes have deliberately turned from cigar and pipe to the cigarette. Inasmuch as ten to twelve million American men use cigarettes, and perhaps even a larger percentage of Europeans, your charge of feeble-mindedness lies against an overwhelming proportion of the commercial, professional, artistic, musical, and industrial world.

May God help the people, especially the boys, who belong to or even *attend* a church where the *minister* uses cigarettes. Does any one know of such a minister? I fear it may be true of some *doctors* and perhaps lawyers; but I am sure, if so, they are already beginning to see what this age demands of a medical and legal adviser.

Below is a part of the reply to the American Tobacco Co.:

I also call your attention to the statement of one of the magistrates in your city (New York) who states that 99 per cent of the boys between the ages of 10 and 17 who come before him charged with crime have their fingers disfigured by cigarette stains.

If, as your letter indicates, scientists and others have thus far failed to find any injurious element in the cigarette, then we must laud Mr. Edison for being the first man to find the reason for the degenerative effect of cigarette-smoking.

I doubt very much the statement you make in your letter that the popularity of the cigarette is possible only because millions of American men have convinced themselves that cigarettes are good for them, and would, therefore, ask you to point out what beneficial result has ever been experienced by any one through indulgence in this habit.

It would appear that the statements contained in your letter are not of such a nature as to be for the benefit and uplift of our wayward lads; and in justice to the American youth who knows not what permanent injury accompanies this habit, this growing evil should be combated.

E. G. LIEBOLD,
Secretary to Henry Ford.

Perhaps I should mention here that, during the past summer, Prof. Wiley spoke at our Medina Chautauqua. Well, after his talk it was the privilege of the Root Co. to entertain him a couple of hours or more. I had a long talk with him about medical frauds of all kinds, water-witching, etc. I mention this as some our readers have

* Henry Ford now occupies the unique position of being at the head of the largest manufacturing institution of any kind in the world. What a wonderful opportunity he has for philanthropic and reform work of this very kind! We may be thankful that he is the kind of man that he apparently is.

suggested that may be I was not in touch or up to date in regard to all new inventions, discoveries, etc., all the while coming out. And let me also mention right here that Dr. Wiley said the American Medical Association (from whom I have so often quoted in exposing harmful so-called "medicines") is the best and wisest authority in our land.

Here is what the Ford people say of Dr. Wiley:

When Dr. Harvey W. Wiley was chief of the Federal Bureau of Chemistry at Washington he had impure food and drug manufacturers on the run all the time. He is unquestionably the leading health and food authority in the United States to-day. Would you know his opinion of the cigarette?

Here is what Dr. Wiley says of cigarettes:

"I commend Mr. Ford, Mr. Edison, and all people who join them in efforts to curtail or restrict, obliterate, or destroy the pernicious habit of cigarette-smoking. The use of cigarettes is making inroads on the strength of the nerves of all who smoke them, especially boys of tender years, or women who smoke them because they think that the practice is smart. The effect may not be so bad on people of more mature years; but not in any case, no matter how old a man or woman, is smoking helpful. Besides constituting a nuisance, the financial strain connected with use of tobaco stands between millions of people and home comforts."

Below are some more from the best authorities of the present age.

CONNIE MACK SPEAKS.

The boy who does not know of Connie Mack is not old enough to read the newspapers and take an interest in baseball. As leader of the Philadelphia Athletics, Connie Mack takes rank as one of the greatest generals baseball has ever known. He reads men and boys as an ordinary person reads a book. He contributes to the *Scientific Temperance Journal* this characteristically clear statement:

"It is my candid opinion, and I have watched very closely the last twelve years or more, that boys at the age of ten to fifteen who have continued smoking cigarettes do not as a rule amount to any thing. They are unfitted in every way for any kind of work where brains are needed. No boy or man can expect to succeed in this world to a high position and continue the use of cigarettes."

CIGARETTE IS ONE OF THE WORST HABITS.

Hon. Benjamin B. Lindsay is judge of the Juvenile Court in Denver, Colorado, where are handled the cases of boys and girls who have gone wrong. He is often referred to as "the golden-rule judge" because of his kindness, and the deep interest he takes in boys and girls. In telling "What I Have Seen of Cigarettes," Judge Lindsay says in part:

"One of the very worst habits of boyhood is the cigarette habit. This has long been recognized by all the judges of the courts who deal with young criminals, and especially by judges of police courts, before whom pass thousands of men every year who are addicted to intemperate habits. These judges know that in nearly every case the drunken sots who appear before them, a disgrace to their parents, themselves, and the State, began as boys smoking cigarettes. One bad habit led to another. The nicotine and poison in the cigarette created an appetite for alcoholic drink. The cigarette habit not only had a grip upon them in boyhood, but it invited all the other demons of habit to come in and add to the degradation that the cigarette began."

HUDSON MAXIM ON THE CIGARETTE.

Hudson Maxim has won world renown as the inventor of high explosives for use in battleship guns and torpedoes and for various other purposes. He comes out squarely against the cigarette in this fashion:

"The wreath of cigarette smoke which curls about the head of the growing lad holds his brain in an iron grip which prevents it from growing and his mind from developing just as surely as the iron shoe does the foot of the Chinese girl.

"In the terrible struggle for survival against the deadly cigarette smoke, development and growth are sacrificed by nature, which in the fight for very life itself must yield up every vital luxury such as healthy body growth and growth of brain and mind.

"If all boys could be made to know that with every breath of cigarette smoke they inhale imbecility and exhale manhood; that they are tapping their arteries as surely and letting their life's blood out as truly as though their veins and arteries were severed, and that the cigarette is a maker of invalids, criminals, and fools—not men—it ought to deter them some. The yellow finger stain is an emblem of deeper degradation and enslavement than the ball and chain."

In closing let me call attention to the self-evident fact that the Tobacco Co., like the brewers and distillers, has no object in life, no motive for living, other than to "*make money, more money,*" while our good men and women are, with scarcely a *thought* of self, giving their lives for the uplifting of humanity, especially our growing boys and girls.

"RENDERS INFERIOR SERVICE."

That is what the great railroad company, the Baltimore and Ohio, says of its employes who use tobacco while at work. See below, taken from Medina *Gazette:*

The B. & O. R. R. Co. has placed the use of tobacco by station employes and others who come in contact with the public under ban during working hours. The railroad company does not seek to restrict the use of tobacco by its employes when off duty. But it is believed by the management that a man using tobacco while at work renders inferior service, to say the least; and aside from the time lost in "lighting up" there is a certain class of people to whom exhaled tobacco smoke is objectionable.

Another great railway company has said: "No employe need expect promotion who uses tobacco while at work."

"TAGGING THE SOULS OF MEN FOR PERDITION."

The Bradentown *Evening Journal* says:

Dispatches announce the fact that a Columbus, Ohio, brewery, a twelve-million-dollar corporation, went into the hands of receivers of the Federal Court. The dispatch carried the laconic statement: "The decreased beer demand and the adverse legislation in many dry States is given as the cause."

It scarcely would be becoming in citizens who manifest a pride in the industrial development of the country to rejoice in the failure of an enterprise of large proportions which is engaged in its legitimate work of tagging the souls of men for perdition; but those who look hopefully forward to the time when this shall be a saloonless nation cannot but note with satisfaction that the liquor business is growing less alluring year by year.

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Gleanings in Bee Culture



Vol. XLIII FEBRUARY 1, 1915 No. 3

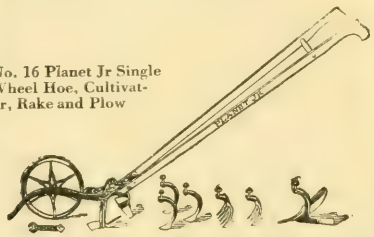
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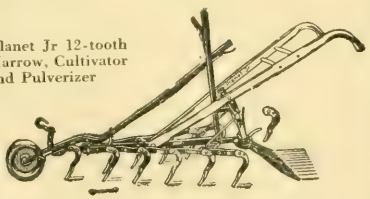
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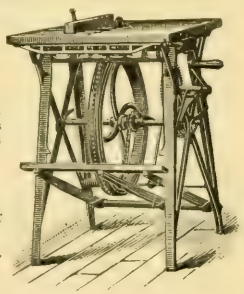
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VOL. XLIII. FEBRUARY 1, 1915 NO. 3

EDITORIALS

Our Cover Picture

THIS is the promised special number on personal experiences of prominent beekeepers. How do you like it? Do you not think that the beginners of 30 or 40 years ago had a harder time than do beginners of the present day now that all these early mistakes have been pointed out?

Our cover picture shows an apiary of one of our younger prominent beekeepers, Mr. Ira D. Bartlett, of East Jordan, Mich. Another view of this same apiary appears on page 101.

Date of the Pennsylvania Convention Changed

THE annual meeting of the Pennsylvania State Beekeepers' Association will be held in Harrisburg on the afternoon and evening of Tuesday, February 23, and forenoon and afternoon of the 24th, instead of Friday and Saturday, February 26 and 27, as announced in GLEANINGS for January 15. The dates have been changed so that beekeepers in attendance can more readily see their representatives in regard to proposed legislation. A full announcement will be found under head of Convention Notices.

Gleanings for 1915 Worth Reading

THE readers' attention is called to the fact that these columns will contain reports of valuable experiments in wintering and increasing bees at the Dismal Swamp, Virginia. We intend to give the unvarnished facts as they occur. Our Apalachicola proposition did not pay expenses, as the final figures now show. Whether the Virginia proposition may turn out any better, we shall see. In the mean time our readers will get the benefit of all these expensive experiments—experiments that the ordinary beekeeper himself cannot afford to make. Where we lose out on these experiments we shall hope that our readers will stand by us by rolling up a subscription list large enough to enable us to do for them what they cannot do for themselves.

An Anti-spraying Bill for Massachusetts

THE Massachusetts Society of Beekeepers, by Mr. Frank W. Frisbee, President of the society, have prepared a bill to be presented to the Massachusetts General Assembly, to be acted upon during the coming session, regulating the use of poisonous spraying materials upon the foliage of trees and shrubs and vegetation in general, the purpose of the desired legislation being to protect the beekeepers and their allied interests. In order to get this through, beekeepers should write to their senators and representatives at once, urging their support of the measure.

The Ohio State Beekeepers' Convention at Columbus

THIS was held on the State Fairgrounds in connection with the general horticultural exhibit, on Jan. 11 and 12. The afternoon session on the second day was held with the State Horticultural Society, during which the relation of bees to horticulture was discussed.

The meeting of beekeepers was not large, owing, no doubt, to the fact that it was impossible to give a general announcement through the bee-journals, as the secretary and president could not determinte the time and place of the convention of the Horticultural Society. But what the convention lacked in attendance it made up in enthusiasm in the discussions. Some arrangements were made for one or two field days, and it is possible that the next convention will be held at Akron—a locality where there are such immense areas of swamp bee-pasturage.

Mr. J. H. Morris, one of the State foulbrood inspectors, was elected for the ensuing year as president; Mr. A. J. Halter, of Akron, vice-president, and Mr. E. R. King, of Athens, re-elected secretary.

Double Telescope Covers vs. Single-board Covers

During the sudden cold spells late last fall we had a most excellent opportunity to compare the two styles of covers on bees. The weather turned so very cold that we were not ready to put the bees in the cellar until they had a flight. We replaced some of the single-thickness board covers with double telescoping covers at the home yard. While, of course, the bees had no opportunity to seal down the super covers, it was perfectly evident that the combination was much warmer than the single-thickness cover. The clusters were expanded somewhat, even though the temperature went down in some cases. Next year, for fall work we propose to have thin cushions to put between the outer and inner cover. With such a covering and a chaff division-board, one on each side of the cluster, a colony will be housed almost as warm as in double-walled hives without the bulk or weight; then when settled cold weather does come on we shall have hives that will be ready to put in the cellar, and hives, too, that, when set out in the spring, will protect their colonies much better than if the single thickness of wood all around were the only protection.

The double telescope covers cost a little more; but the experience of the last few days with cold weather shows us that they will more than pay this extra cost in one season. Extreme cold with limited protection will cause the bees to overfeed. Overeating causes dysentery. While a good flight will clean up the bees it does not repair *all* the damage done. When conditions are right there will be no spotting or black ill-smelling stains.

Upward Absorbents vs. Sealed Covers

It will be remembered we have always argued (for our own locality at least) against absorbents with upward ventilation for colonies wintered outdoors, and in favor of sealed covers, so called, using ordinary super covers that were laid on top of the hives, but not sealed down. Strictly speaking, then, we did not use sealed covers, but an arrangement that was a compromise between the two extremes; and this is the arrangement that at Medina has generally given us the best results. A board like a super cover is, of course, better than a sheet of glass, as it is a better non-conductor of heat, but it does not permit of easy observation so that the position and size of the cluster can be readily determined. Colonies with absorbing cushions and upward ventilation have a wire screen placed over them upside down, the same as we use in shipping bees by the carload or moving them from yard to yard. Over this is placed a square of burlap, and the whole is covered with loose planer shavings. The wire screen of course enables us to see down into the cluster the same as through the glass.

Mr. Holtermann called our attention to the fact that we had not provided an air-space over the top of the absorbing material, which he regarded as important. This we have remedied, so that the two ideas or two schemes of top packing may be tried out thoroughly side by side in the same winter case.

In the same yards we have also colonies in individual double-walled hives of the usual pattern. These colonies appear to be wintering well. At present at least the scheme of wintering four colonies in one large quadruple winter case looks good.

Careful records are being made, and the result will be published from time to time in these columns.

Hams and Comb Honey; Is there an Unjust Discrimination between the Two on the Part of the Government?

Several times of late the statement has been made that hams may be sold with their wrappings at so much a pound, wrappings and all. Attention was drawn to the fact that if the container of a ham could be weighed in and sold as so much ham, that comb honey, including the section around it, ought by the same token to be weighed in and sold as so much honey; that it is inconsistent to allow the container to be weighed in one case and of being excluded in the other; that if this was true, the comb-honey business was being unfairly dealt with.

While in Washington lately we took up this question and found that hams—in fact, all kinds of packed meat—come under the jurisdiction of the Bureau of Animal Industry. All other foods and drugs come under the jurisdiction of the Bureau of Chemistry. As the two bureaus are entirely separate, there is no inconsistency in the ruling nor in the interpretation of the law as put out by the Bureau of Chemistry or by the Bureau of Animal Industry.

The suggestion was made that the National Beekeepers' Association should make a test case of this in the courts by shipping some honey, not properly labeled, to a consignee, in some other state. A friendly suit might be entered, and the case argued pro and con on both sides; and when the court renders its decision we would know whether comb honey is a package or not within the meaning of the law. But the probabilities are that the court would rule in accordance with the interpretation made by the Bureau of Chemistry, and, besides, it is doubtful if the National Beekeepers' Association would have the funds to conduct so expensive a suit.

The Editor of Gleanings Visits the Apicultural Building of the Government near Washington, D. C.

On our return trip from the Dismal Swamp we stopped off in Washington and hunted up Dr. Phillips. In the language of Roosevelt we were simply *delighted* with what we saw, especially in the apicultural building of the Government at Sommerset, a suburb of Washington, D. C. For pictures of this building and grounds see cover for Nov. 15th Gleanings and p. 856, Nov. 1.

As announced elsewhere, Dr. Phillips and his assistants are continuing in their new quarters their series of experiments in taking winter observations on the internal temperature of a cluster of bees. In fact, there are several clusters in the cellar and outdoors. Daily records are being taken, including Sundays, and these data are being entered in tables and charts that will doubtless be given out to the public at a later time. It would be premature for us to give any thing at this time, as Dr. Phillips wishes to be sure of his ground before any thing is made public. We may say, however, that he and his assistants are testing out not only different temperatures, but different kinds of foods, particularly candies, and their effect on bees. Further researches are being made into the anatomical structure of bees. Nothing is taken for granted, but every thing is being done with the utmost care and precision.

In the matter of wintering, for example, the beekeepers of the country have been at sea because the ordinary layman is either careless in his method of reporting what he sees or does not actually see what he *thinks* he sees. Too many times the average man jumps at conclusions based on a single observed incident. Dr. Phillips and his assistants are drawing conclusions from scores and scores—yes, we might say thousands—of observations. These data are carefully tabulated and charted, and they will speak for themselves when they are given out to the public.

Our Visit to the Bureau of Chemistry, Washington, D. C.; an Interview with A. S. Mitchell Regarding the Operation and the Interpretation of the National Net-weight Law

Mr. A. S. Mitchell is secretary to the Committee in the Bureau of Chemistry that has to do with the interpretation and operation of the Federal net-weight law. These men, by virtue of their position, are compelled to stand between the public and the manufacturers and sellers of foods and drugs. We explained to Mr. Mitchell that the opinion rendered, that the wood or section around a square of comb honey could not be weighed in with the honey, was raising a big protest among beekeepers. He was very frank to say it was not clear, even to him, that a section of honey was a *bona-fide* package within the meaning of the law; but it was his private opinion and that of his associates that the courts would rule that the wood around a piece of comb honey or what is technically called the section, could not be weighed in. There could be no question, he said, but that a section of honey inside of a carton or wrapper of any sort was a package. He was sorry that the law was causing protest among honey-producers, but he begged to assure us they did not make the law, nor did he go so far as to say that their Committee could in all cases interpret. The final decision would rest with the courts. We ventured the statement that if we follow the recommendation of the Bureau of Chemistry the courts would be very lenient. He assented to this, adding that the courts probably would not impose any penalty on any man or corporation that evidently was trying to do its very best to follow the spirit and intent of the net-weight law.

A question has been raised by some of our subscribers whether a sixty-pound can of honey is a package within the meaning of the law. We put this up to Mr. Mitchell, and he gave it as his opinion that it is a package on account of its uniformity in shape and size; but he advised that both shipper and consignee, on interstate shipments, should have them labeled or marked according to their net weight or volume. In view of the fact that honey varies in specific gravity, and in view of the further

fact that the net-weight law allows us to use either measure or weight, Dr. Phillips suggested that every square can of honey be marked "Not less than five gallons." While most normal honeys when cold will show a net weight of 60 lbs., in these cans, they may run a few pounds less; and for that reason the suggestion to mark the cans by volume rather than by weight is a good one. Some very good honeys run only about 11½ lbs. to 11¾ lbs. to the gallon. If we were to use a label for such square cans, "Not less than 60 lbs. net," it would not be applicable on honey running 11¾ lbs.

Of course beekeepers know or ought to know that a 60-lb. square can will not hold 60 lbs. of honey unless it is *cold*. A five-gallon can will not hold more than 58 lbs. of a normal twelve-pound honey when hot enough to prevent granulation.

There was one point brought out by Mr. Mitchell that every shipper and receiver of honey should bear in mind; and that is, both shipper and consignee must see to it that the honey is properly marked before it is shipped from one state to another.

Let us suppose a case, and already several instances have come to us something like this:

Mr. A, in Iowa, cannot see any good in the net-weight law. He does not believe it is enforceable, and, what is more, he is not going to pay any attention to it. If he wants to ship his honey to another state he is going to do it; but Mr. B, in another state, does believe in the net-weight law, and desires to buy honey of A. A sample is submitted, and Mr. B makes a purchase. Mr. A ships the honey to Mr. B, in New York. A did not mark the honey in accordance with the net-weight law. In the meantime the Government officials seize this honey and condemn it because it is not properly marked, and Mr. Mitchell told us that the Government was going after some of these fellows of the Mr. A class. "But," said Mr. Mitchell, "in this case A will go scot free because B bought the honey of A. A's title to the honey ceases as soon as it gets to his railroad station. A is not liable, but B is. B not only may lose the honey, but be subjected to a fine and possible imprisonment, notwithstanding that he is morally innocent but technically guilty. The only way B can protect himself is to compel A to deliver the honey f. o. b. to B's freight office. In this transaction the title to the honey does not pass to B until it arrives at his office. In other words, B is not in this case the owner of the shipment. In most cases doubtless, buyers will have all their honey sent to them f. o. b. their office. In some cases it will not be possible to determine what the freight will be; but the buyer will pay the freight and deduct the same in his settlement for the honey.

It is very important that shippers of honey, either in car or small lots, comb or extracted, mark the net weight or the measure on the container, on all interstate shipments. We happen to know that there are fellows like Mr. A who are going to get into trouble. The Government is only waiting till every one has a full and fair opportunity to learn the operations of the net-weight law. There is no particular time limit, but the probabilities are that some seizures will be made in the near future.

Our Visit to the Dismal Swamp; the Early Winter in and about Norfolk, Virginia

On the 11th of January we started for the Dismal Swamp, taking along with us our expert queen-breeder, Mr. Mel Pritchard, who wished to look over the situation to see what could be done in queen-rearing in March and April next. The early setting-in of winter in and about Norfolk—much earlier than usual—gave us some uneasy apprehensions as to the condition in which we might find the bees, and our fears on examination were not wholly ungrounded. Several local residents said the winter had set in almost a month earlier than usual; and Mr. Francis Danzenbaker, who has lived for years in that locality, stated that it was the coldest winter he had seen in seven years. Taking it all in all, the Root Co. with their bees bumped up against a cold proposition.

The first carload of bees was shipped down to Virginia the last of October. If we had shipped them a month earlier to get the benefit of a month more of brood-rearing, or if we had had fair colonies instead of nuclei, it would have been better. With feverish haste Mr. Pritchard and ourself went through the colonies. The great majority of them were in fair condition; but some of the weaker ones gave us a little fear as to what the outcome might be, as we found some already dead.

The second carload of bees, placed in another yard a few miles further south, were in very much better condition. All of its colonies were in good condition except a very few, and some of these could be saved by nursing.

We had been told that bees could fly in the Dismal Swamp almost every day, and

that is true during normal winters; but it has been considerably colder this winter.

The fact that bees can fly almost every day brings in an element of danger. While these frequent flights of course eliminate all possibility of dysentery, these same flights have a tendency to wear out the bees; and unless brood-rearing can proceed simultaneously the colony will grow weaker and weaker. This winter cold weather set in early in December; and it was extremely cold during Christmas and the holidays. In the mean time brood-rearing stopped entirely. Mr. Pritchard and ourself were a little worried over the outlook. Finally we called in Mr. Edmunds, an old beekeeper of that locality who has carried on beekeeping in a large way for a number of years. He assured us we need have no apprehension over the smallness of some of the clusters, saying that they would pull through all right.

The main cause of the death of some of the colonies was the early winter and robbing. Constant flying nearly every day weakened some colonies, with the result that the stronger ones were inclined to worry their weaker neighbors. This was aggravated somewhat after feeding had begun. We instructed Mr. Jennings not to do any more feeding, but to contract the entrances. This is very important, said Mr. Edmunds, on account of mice, and to conserve the heat of the hive.

Mr. Pritchard called attention to the fact that the *yellow* bees were not holding their own as well as the darker strains of Italians. The fact became more and more apparent as we bent over the bees. The native Virginia brown bees showed up better yet.

Another thing that we observed was that there was considerable "drifting," as the colonies had been placed in pairs. The numerous flight days would call out the young bees in force. The result was that they would have a tendency to join the entrances of the strongest flyers. Repeatedly we observed that, where there was one colony that was weak, the one next to it in the pair would be quite strong, indicating that the former had contributed to the strength of the latter.

This is one objection to putting hives in pairs in the South. Where we found the strong and the weak ones side by side we simply traded place with the hives, allowing the colonies to equalize themselves during the subsequent flight.

We also observed the importance of top protection. Some colonies had more than others; and it was evident that the latter were the stronger. The two days that we were there, there were heavy frosts in the morning, and it was easy to see the relative size of the clusters of bees on the tin covers, for the exact size and location of the cluster would be indicated by the melted frost, while the remaining area of the cover would show white crystals. We instructed Mr. Jennings to put pine leaves between the inner and outer cover, as we used on these hives what is known as the "telescope" cover, with a super cover or a thin board beneath.

In a few cases the field mice had crowded the entrance cleats into the hive. They did no particular damage except to riddle the combs at one side of the cluster. All cleats have now been securely fastened, with a further contraction of the entrance.

We asked Mr. Jennings and Mr. Edmunds how long this cold weather might last. The reply was that it might pass off in a day, and stay off, or it might last clear up to the last of February or first of March. We hope that the early setting-in of winter will be followed by an early spring.

The Behavior of that Cluster of Bees Behind Panels of Glass; Freezing Bees

As mentioned on page 49 of our last issue, we have been gone from our office for about ten days. Meanwhile there has been considerable cold weather. On the day of our arrival home, on the 21st, we removed the wooden panel to see how the cluster of bees was coming on. It was getting smaller—very much smaller—and the shell of protecting bees was gone. The cluster was broken and scattered, and the bees seemed to be cold or chilled. The next day they were as still as death, and we began to wonder whether they would not, under such conditions, assume a state of semi-hibernation. We looked at them intently, but there was very little movement—only a sort of suspended animation—just enough to show that the bees were alive, but somehow they did not look good. We left them, however, without disturbance. The next day they were perfectly motionless, and the day following there was not a tremor of any kind. Evidently the bees were chilled through. We took the hive off its pedestal near the window outside, brought it inside, and opened it up. The entire cluster seemed to be stone dead. We picked up a few, and warmed them with the breath, but they showed no signs of life. We placed the hive on a hot radiator, and at the same time we removed the cushion so that the warmth of the room could descend into the

hive. For over an hour there seemed to be no sign of life. In about three hours they began to "come to."

There, we have just taken another look. The bees are active again; but they do not look quite normal—in fact, a little logy—and there is a distinct smell of dysentery. We said the bees are all alive, but there is quite a pile of them yet on the bottom-board. A few of them that dropped down from the cluster are beginning to show signs of life.

For three whole days this little cluster of bees was chilled clear through, without any apparent movement. How much longer they might have remained and revived can only be guessed; but it is apparent that, when the surrounding temperature is cold (below freezing), and the cluster is too small to generate heat by muscular activity as shown on page 49, the bees have to remain chilled until the weather changes.

At the time we removed the colony from its pedestal on the outside the thermometer in the hive but remote from the cluster showed 29; and the cluster at the time we examined it in its chilled state was as cold as death. Apparently the temperature of the individual bees in the cluster was the same as the reading of the thermometer—that is, 29.

Some years ago, late one fall, the outdoor bees had a beautiful flight. They rushed out in a roar. A sudden cold wind set in with a rainstorm, striking down to the ground thousands of bees. It began to freeze, and a thin skim of ice covered the bees. We supposed, of course, all were lost, for the cold spell lasted for about three days. Then bright sunshine came on and melted this thin skim of ice. The atmosphere turned warm, when, wonderful to relate, those bees that had been covered with ice began to show signs of life. They soon began to crawl, and after a little they flew back to their hives. Our apiarist told us what was taking place, but we thought he certainly must be mistaken. Examination showed that the bees were rapidly taking wing from the ground where they had been under the ice for three days. Other persons have since reported the same thing.

It is apparent, then, that bees can stand a freezing temperature for a time. Whether they are the worse for the experience afterward we are unable to say.

Again, we have observed over and over again, that, when there is a protracted zero spell for ten days or longer, we find, as soon as it warms up, a large number of the clusters of bees outdoors chilled through stone dead beyond recovery; that if the zero spell lasts four or five days, or not more than a week, these clusters that were chilled through will gradually assume their normal condition again as soon as it warms up; but if it lasts ten days or longer these small clusters never revive. Apparently, bees can stand a chilling of about ten days, and that is all

Another fact is interesting in this connection. A few years ago when Dr. E. F. Phillips was at our Medina yard conducting some experiments of his own, acting under his directions we put some queen-cages containing some bees and queens on cakes of ice in a refrigerator. The cages were placed face down on the ice. Both the queens and their attendants were chilled through; and while their temperature probably was not below 34 or 35, they to all intents and purposes appeared dead. We found we could keep them in this chilled condition for about ten days but not any longer. Queens subjected to this long chilling period, contrary to all expectations, began laying normally as before.

We are presenting these observations on the matter of chilled bees during winter to stimulate further observation and get further reports. Dr. Phillips and Mr. Demuth, of the United States Department of Agriculture, have shown that when the temperature of the cluster and the atmosphere immediately surrounding it drops below 57 F. that bees have the power to raise the internal temperature by exercise. They are now trying to determine what amount of protection, if any, is needed to keep the bees as nearly in a state of quiet as possible, so they will not have to "exercise," warm themselves up, overeat, and thus bring on dysentery.

There is a wide unexplored field in this matter of wintering. As will be seen by reports elsewhere, Dr. Phillips and Mr. Demuth are working at this problem from several different angles. Our own experiments as recorded above were for the purpose of confirming their observations already reported on the internal temperature of a cluster of bees.

HIBERNATION OR WHAT?

One more question: Do bees semi-hibernate when they are chilled through so as to preclude movement? Is it true hibernation for the time being, or what? If they could remain in this chilled condition through the winter, or until warm weather comes on, like flies and ants, it would be true hibernation. Again, is it possible that bees under some conditions can remain chilled more than ten days or two weeks?

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



THE WET OR DRY issue is the chief factor in the election of a speaker in the Illinois legislature, and it's which and t'other who wins. "The world do move."

THAT carload of beekeepers from Chicago to Denver makes me feel homesick that I can't go. What a glorious time those Colorado fellows gave us when the National convention was at Denver before!

"IF we are all successful in producing a crop of honey each year, we should fail from overproduction," says P. C. Chadwick, p. 53. May be, m-a-y be. But so long as the average isn't more than 20 cents' worth of honey per capita we'll have to overproduct a big lot before there will be any honey to throw away.

"THE eight-frame is not worthy of mentioning as a beehive. It may do for a home for a nucleus for a short time," p. 36. Don't be too hard on us eight-framers, friend Janes. I humbly concede that a larger hive may be better; yet with the eight-frame I get crops that don't exactly look like the work of nuclei.

QUADRUPLE winter cases are getting such a boom now that it might be worth while to try them two deep, eight in a case, as I saw them at Jesse Oatman's many years ago. [Dr. E. F. Phillips, or, rather, his brother, is trying out precisely this thing. Perhaps we can get them to report on it next spring. —ED.]

J. G. BROWN, your testimony in favor of the Alexander plan of increase, p. 27, is excellent, but beside the mark. Of course, the plan of increase is good; but please give us names of those who have increased by that or any other plan so that *"you can have two good strong colonies in place of one ready to commence work on your clover harvest."*

W. L. ROBERTS warns against rearing queens in an upper story over an excluder, as too much trouble and perhaps loss. I don't find it so here. Several times I've had queens thus reared and fertilized when there was no intention on my part to have them reared, and it was all gain. But when I deliberately put brood there for the express purpose of rearing a queen, it's a failure. I wish I knew why.

R. F. HOLTERMANN, p. 56, says with the straight rows of hives facing the same way the general result is drifting. My bees are that way, and for years there was drifting bad. For years there has been none. Let me tell again what I think prevents it. As soon as a hive is placed on the stand and dead bees cleaned out, the entrance is closed down to an inch square or less. That's all —no drifting. [See editorials.—ED.]

"EVEN if Dr. Miller has a continuous flow during the spring, surely he must be very exceptionally favored if he has not adverse weather at times when stimulation would be an advantage," says R. F. Holtermann, p. 12. I don't have a continuous flow, friend Holtermann, and I suspect I have as much adverse weather as you. But it isn't so bad as to prevent the queen laying right along; and the chief effect of feeding in adverse weather would be to make the bees fly out to their hurt.

MY son gave me a vest-pocket flashlight for Christmas. I had a sort of dark lantern before that I thought fine for looking into hives in cellar; but the flashlight beats it a mile, just as you find it in Medina. Nice, too, to see the time of night. [These little flashlights are extremely handy; fine for looking down children's throats to see if there are any white patches indicating serious trouble. They are also very convenient for running around buildings or barns on a dark night; but the light must not be kept on continuously, otherwise the batteries will soon wear out. The kind that we are using with such satisfaction very much resemble a good-sized fountain pen with a clip to hold it in the pocket. It is 5 inches long and ¾ inch in diameter, and costs $1.00. Extra batteries are 25 cents each.—ED.]

GEO. W. YORK, formerly editor of *American Bee Journal,* is now a member of the Idaho legislature, where he is likely to get in some good licks for beekeepers and prohibition. The governor is also strong for prohibition. [Yes, and he is in the legislature at the right time. A member has introduced a bill prohibiting the keeping of any bees within one hundred yards of the line of the other property. While we do not believe it can get beyond committee, we can't afford to take chances. All our subscribers who see this should write at once to Hon. Geo. W. York, General Assembly, Boise City, Idaho, offering their protest to House Bill No. 18.

Later: This has been killed 11 to 47; thanks to Mr. York.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



A young queen is half the battle, both in fighting disease and in securing surplus.

* * *

If bees are in good condition, and have plenty of stores, they should not be disturbed much during the winter months.

* * *

With a light crop of oranges, and with trees in a prosperous condition, the prospects were never better for an abundance of bloom this spring.

* * *

The best way to build up weak colonies in the spring is to see that they have a young queen and plenty of stores in the fall. It is the best insurance you can take on bees.

* * *

There is no profit in extracting too close, then running for increase every second year. Leave plenty of honey always. Use the time you would spend in making increase in running the extractor for profit.

* * *

B. G. Burdick, of Redlands, Cal., expects to leave soon for the Antelope Valley, where he will enter the bee business on a large scale. Alfalfa is the principal source of honey in that section, and the quality is said to be of the finest.

* * *

Several apiaries of 200 colonies each can be run by two men with a power extractor by going from yard to yard. But one man to every yard during the honey-flow is worth more than his hire to requeen and to look after details of the yard, and the power extractor can be used to advantage at times also.

* * *

Up to Jan. 12 we have had a series of small storms with a light precipitation which has not penetrated the soil to any great depth. The surface has received enough to keep vegetation in a prosperous condition, and prospects for early pollen were never better. More rain, however, will be necessary to produce a crop from wild flora.

* * *

J. Edgar Ross, of Brawley, Imperial Co., is disposing of his bees after some years of successful operation. He has become the chief pen-pusher as well as owner of a new newspaper which has already seen issue. We regret the loss of Mr. Ross from our ranks, but wish him a full measure of success in his new venture.

* * *

Within a few years sage honey will become the most desirable of all honeys, and will sell at a premium. The sage ranges are yielding more rapidly at present to brush fires than to the plow. Many of our finest ranges have suffered in the last few years. One side of the famous Mendleson range in Ventura Co. was destroyed last year.

* * *

J. Edgar Ross, of Imperial Valley, says the only apiary he has producing alfalfa honey exclusively sometimes produces a white honey. This is the first time I have had an admission that alfalfa produced any thing but a dark honey in Imperial Valley. He also says there are sources of production other than alfalfa that are factors in honey production, which do not produce a light honey.

* * *

On Jan. 10 I opened two hives to observe their condition—one an average colony, and the other the weakest in my little home yard. The average colony had four frames of brood and a force of bees sufficient to begin on a full-fledged honey-flow. The weaker one, which is fully as strong as my strongest one last season, had brood in three frames a part of the way across the frame. There has not been a day during the entire winter when these hives have not contained brood. With this condition prevailing at the present time, it looks favorable for a spring working force of bees in this section equal to any of the past ten years.

* * *

A gentleman at the State convention spoke of antiquated methods, among which he mentioned the solar wax-extractor. I flinched just a bit, for I am a little tender on that subject. I am just antiquated enough to believe that capping-melters now in general use color the honey. To my mind there is no question about it. If one were extracting a dark grade of honey it might not make much difference; but when a light grade is being handled, and the object is to place it on the market as white as possible, I will take no risks with a capping-melter which runs the honey over a hot metal surface. This of itself has a tendency to discolor. Until I am convinced that it does not discolor, antiquated or not, I will call "old Sol" to my assistance.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



Jan. 8.—The weather is quite mild, but not warm enough for the bees to fly. Here's hoping we shall get warmer weather before it is colder again. Anyway, the "January thaw" hoped for in my last Notes has arrived; but in view of the fact that the "oldest inhabitant" says he has seen hundreds of Januarys without once missing a thaw, how could we expect anything else in January, 1915?

* * *

Last season a number of queens received in one mail showed signs and "smells" of dysentery in the mailing-cages. At the time, I wondered if bees too young had been placed with the queen for attendants; but since reading the editorial, page 4, Jan. 1, have we reason to believe that boiled honey was responsible? It is an important question, and one in which commercial queen-rearers will be particularly interested, especially in cases where long-distance shipment is necessary.

* * *

Quite often we hear it said that, north of a certain latitude, outdoor wintering is not safe, whereas other factors enter into this problem that have to be taken into consideration as much as latitude or weather, which, after all, are what are usually considered in a question of this kind. Here in York Co., Ontario, the winter weather is not nearly as severe as it is in the northern part of Simcoe Co., one hundred miles north, where we have a large apiary. In both cases we winter outdoors; and, strange as it may seem on the mere assertion of the fact, the bees up there are warmer in a forty-below snap than they are here at 10 below zero or thereabouts. The reason? Simply because, as a rule, we have a light snowfall here in York Co., and the hives are generally exposed to all the cold wintry blasts during most of the winter season. Up north the snowfall is heavy, and generally comes early in winter—in fact, it is a rare thing that there is much frost in the ground in that section, while here it will penetrate two and three feet. At this date there is practically no snow in York Co. At the north yard the whole apiary has been about completely covered for two weeks or more. If there is danger that this snow may have a bad effect we have yet to observe it. Two years ago I went up there on New Year's day and found all the winter cases about out of sight—many of them totally covered over. I dug down in front of a few, and in each case there was an opening melted around the entrances, varying from the size of my hat to a space as large as a half-bushel. I decided they were all right, and found out in the spring that such was the case, as the bees wintered finely and were very strong early in the season. But after the bees have had a cleansing flight in early March or thereabouts, then it is a dangerous practice to leave snow all over hives, because after strong colonies have had a flight, and are breeding heavily, there is pretty sure to be trouble if they are left covered over very long in early spring weather.

* * *

VIGOROUS ITALIAN BLOOD IMMUNE TO EUROPEAN FOUL BROOD.

Dr. Millèr wonders if I really mean what is implied in the quotation he takes from a recent item of mine in GLEANINGS, page 836, Nov. 1. "Universal requeening with good Italian stock seems to be the only remedy for it." European foul brood is the subject under discussion. Frankly, doctor, that is what I mean; and after wading through all the government literature we have on the subject, taking into consideration the advice of our friends in charge of the department of apiculture, and in various other ways, summing up the evidence of those fighting the plague at first hand, that is the only thing that seems worth doing. True, there are different methods and seasons of doing this requeening; but the evidence seems to point strongly to the fact that where apiaries are all pure Italian stock of a good strain, the disease makes little headway to need curing. Needless to tell the doctor that what I do not know about European foul brood would fill volumes of GLEANINGS, while what I do know might be condensed into a short paragraph. One thing that I do know is that I dread to see the disease make an appearance in my apiaries (none there yet that I know of), while on the other hand I have little fear of our old enemy American foul brood. Possibly it is a case of familiarity breeding contempt; but the fact is that the old-time foul brood is easily diagnosed when once known by a beekeeper; and while destructive if let go, yet we know the course of the disease, how to treat it, etc., while on the other hand this new enemy is very erratic in many ways, and I am tempted to think that even our experts have a lot yet to learn about its various phases as to methods of infection, etc.

Beekeeping Among the Rockies

Wesley Foster, Boulder, Colorado.



I mentioned in a former issue that bees should winter well. This is rather too optimistic a view, although the winter so far has been very favorable. The bees throughout the state did not breed very well in the fall. Some are rather short of stores; and in Boulder Co. the honey from the horsemint has apparently not helped wintering conditions in the least. The loss in some districts is likely to run up to 25 per cent. I expect a loss of 15 per cent any way.

* * *

The beekeepers of Colorado are going to turn out in force for the National convention. The committees working on local arrangements are meeting with gratifying success. When you come to Denver you will be surprised at the size, enthusiasm, and hospitality of this convention. You will be met at Union station by autos and taken to convention headquarters in the Auditorium Hotel. You will be greeted by specialists, amateurs, and enthusiasts alike. You will be banqueted, lunched, and entertained. You will gain ideas worth dollars, gauged either in hundreds or thousands according to the size of your beekeeping operations.

* * *

SUGAR BEETS AND SUGAR.

The editor says on p. 965, Dec. 15, 1914, that sugar is almost sure to remain high in price. This will doubtless be the case; but he goes on to say that there will be no beet sugar raised for two or three years. As Colorado is the largest producer of beet sugar of any of the states, I think that statement is entirely too strong. The sugar companies are making plans for this year, any way, and the farmers seem to be far more exercised over a desire for a higher price for their beets than from a fear for lack of seed. I understand that there is seed enough on hand for this year already for planting.

* * *

NET-WEIGHT STAMP FOR SECTION HONEY.

A rubber stamp, much more attractive for stamping comb honey, can be made by having the lettering placed within an oval border. The words "Net weight not less than" should run around the inner border at the top, the weight in ounces spelled out, running through the center, and the beekeeper's name and address or number around the lower side of the oval border. I have seen stamps made on this design, and they are a great improvement over the ordinary stamp now in use.

* * *

THE ALEXANDER PLAN OF INCREASE.

It is not always safe for a man as young as I am to call in question statements made by a man of the experience of Dr. Miller; but I cannot refrain from protesting the accuracy of his statements regarding the Alexander plan of increase.

I will not trespass on Dr. Miller's white-clover territory, for he knows more about that than I do; but when he states that he does not believe the surplus crop of honey can be increased in one place in a thousand he invades my territory. If he will make his question to read, "What honey-producer increases his crop of white sweet clover and alfalfa each year by dividing his colonies before the white-honey harvest?" I will give my name as doing it four times out of five; and I will state that I believe seven out of every ten honey-producers of the alfalfa-sweet-clover districts of the Rocky Mountain region who practice the Alexander method or modification of it have profitable results. The percentage of successes would be larger if it were not for the fact that so many of our alfalfa locations are destitute of early pollen sources so that it is simply impossible to breed up much until June.

This matter of dividing in early June or late May, according to the season and location, is one of the points that should be pushed among western beemen, although they are learning very fast. If increase is not desired, the bees may be united in the fall, and the united colonies wintered in two-story hives.

Dr. Miller has, however, defined the limits of the use of the Alexander plan very well. Here in the West we have an early flow from wild flowers, fruit-bloom, etc., that prepares the bees for swarming in many instances before alfalfa blooms in June. By dividing the force of bees each colony may be steadily built up during June; and in July and August, when the main surplus comes from sweet clover and alfalfa, the two colonies made from one, *a la* Alexander, are both ready to store surplus, and they do too. J. G. Brown has also called in question Dr. Miller's two statements. But then, we are both young men.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



UNITING WEAK COLONIES.

"Last year my bees came out weak in the spring, and many of the colonies died before the honey-flow commenced. By the way things are now looking, I fear I may have the same experience again. How would it do to unite two weaklings, so as to make one good colony?"

There is no doubt that the uniting of two weak colonies to make one strong colony is profitable; still, that uniting must make the one better than either of the two would have been when the honey harvest arrives, or our labor of uniting is worse than useless. We do not hear so much about "spring dwindling" as we did twenty years ago, when often half the colonies in an apiary would be so poor and listless from poor wintering that it seemed almost impossible to get them to build up much before settled warm weather came on, and hundreds of colonies would die during March, April, and May. Then we were told that the time to unite was when it was discovered that any two colonies were too weak to be of use alone. But it was soon found out that, as a rule, the united colony would be no better at the end of a month than each would have been if left separate. In some instances the united colony would perish when two no better than was each of those united would have pulled through and become good colonies in time for the buckwheat flow. Years ago, when I experimented along this line, I put as high as seven such colonies of "worn-out vitality" into one hive, the seven making a rousing colony at the time, and in a month all were dead; while some separate colonies, no stronger than some of the best united, survived and built up for winter.

The trouble seems to be that, where two or more such colonies are put together, the bees feel they are now in condition to do great things, and so work themselves up to great activity in starting a large lot of brood, which wears out what little vitality they have before enough of this brood can emerge to take the place of those wearing out daily, hence all perish; while if they had been left to themselves they would have been less active; the few young bees which emerged would have taken the place of those which died, and, when settled warm weather came, the bees in the hive at that time could care for a large lot of brood in proportion to their numbers, so that the colony would build up for the next winter, if nothing more. I find in an old diary, that I once had a colony become so weak in this way that there were, by actual count, only 83 bees with the queen on June 10; and yet this little colony, without any assistance from any other colony, built up into a good colony for winter, and gave six sections of nice buckwheat honey. Since then my way has been to confine small colonies to as few combs as they can cover, these combs having plenty of honey in accordance with the number of bees, so that they do not feel any need of scrimping along this line, building them up as fast as possible when it comes warm weather, and then uniting them just before the honey harvest, leaving a nucleus to catch the few bees which may return to the old stand of the weaker of the two which has been placed in the stronger. This will give one colony strong enough for storing, and a nice nucleus to rear two or three good queens from; or if the old queen is left with a comb of honey and the few bees that adhere with her, and these given a frame having a little brood in it, this will build up into a fair colony for winter should the flow prove good from fall flowers.

CONTROLLING DRONES.

"I have six colonies of bees—four blacks and two Italians. Would it be well to give the Italians a comb of drone comb and put drone-traps on the blacks when the young Italian queens are mating?"

If queens are to be mated to Italian drones, of course one must control all drones from undesirable colonies. Drones can be controlled with traps; but we must buy the traps, keep them on the colonies, and furnish the honey necessary to rear and feed the drones, all of which is an expense. Traps would be necessary with box hives; but such are not so much in use these days. For frame hives, much the best way would be to remove all drone comb from the black colonies, and replace it with worker comb. In this way trouble and cost of producing the drones will be saved, as well as the cost of the traps and the disturbance the traps bring to the bees for the first few days after they are put on. Besides this you will rear 50 worker bees to every square inch of such comb you use to replace the drone, instead of the 32 drones, these workers storing honey for you in place of the drones eating it. In any event you could not be sure of having your Italian queens purely mated unless there were no black or hybrid bees within three to five miles.

GENERAL CORRESPONDENCE

BUILDING UP FROM NOTHING

How One Man does Nearly all the Work in Caring for 500 Colonies

BY IRA D. BARTLETT

It is no uncommon thing for me to be asked all sorts of questions about the wonderful busy bee. How long does a bee live? How much honey does a colony make during the season? How many swarms issue from one hive? and then after giving them the best answers I can they will usually tell of the wonders, as they appeared to them, and the miracles performed by old Mr. So and So, when they were boys—how he used to "swarm" swarms without a veil, and with his arms bare, and how the bees would crawl over his face and arms and he never, never got a sting. They had seen the nice yellow wax, and at times *honey,* being carried into the hive by the bees, but it was always on their legs. They had been told the uselessness of the drones, and how the bees did the bidding of the queen.

Regardless of how wrong their ideas were they were interested, though they never investigated further. You and I have seen these same things and heard the same stories. The bright pollen that we thought was honey aroused in us the greater desire to go into the hive and see where it was put, and how things looked in there. We were thrilled by the wonders of nature performed by her agent, the honeybee. Many of the readers of GLEANINGS have just got their first peep into the hive; and, oh the raptures that thrilled their souls! Some of these beginners will follow beekeeping as a pastime; others will engage in it as their life vocation. The last named are most interested in how the successful apiarist of to-day got his start, and how he increased his colonies and built up his apiaries to where he could make a living from them alone. It would be impossible for me to give here a complete history of my beekeeping life; but I can tell how I advanced.

When I was a boy I lived in town; and whenever there was a chance I hied me to the country, for there were beauty and glories the town could not reveal. I loved nature. I was inspired by the song of the birds, the beauty of the growing crops, the fresh, fragrant, and invigorating breezes, and the grand old sun; and the moon and stars were ofttimes my sole companions. I made the most of my trips to the country where there was a very nice apiary, for I liked honey, and soon I was interested in the bees. Early in May, 1895, the owner of the apiary brought me down a nice prime swarm, for which I paid $5.00 in labor on the farm. I was a happy boy, and looked into that hive nearly every day. It is a wonder the bees stayed at all; but they did stay until early in August, when out they came, intending to abscond. I hived them, however; and as we had a late fall with good weather, they gathered enough to winter on. The parent colony reared a queen, and I got them both through the winter safely. I at once subscribed for the *American Bee Journal,* and soon after for GLEANINGS, and for two years I believe I read nothing except that which pertained to the bee. I attribute a great deal of my success to



FIG. 1.—Ira D. Bartlett's home, 20 x 40 supply-house, and garage. Mr. Bartlett purchased a Ford touring car in 1914, which he finds is a great saving in time and labor. The residence has full basement, furnace heat, electric lights, bath, etc.



FIG. 2.—Ira D. Bartlett's 160-colony apiary. Another view of this apiary is shown on the cover.

this. The following season I increased to seven; and, although there was no white honey stored, there was a heavy fall flow, and all had plenty for winter. Besides, I extracted 175 lbs. of buckwheat honey from the super on one of the parent colonies.

The extractor I used was a four-frame non-reversible for which I traded a hound pup, giving $2.00 to boot. This extractor was used until I had nearly 100 colonies.

I wintered my colonies right from the start in winter cases quite similar to what I use now, and was very successful. I started buying colonies from others about me who were not as successful as I, and kept increasing gradually until I had some fifty or so, when I found it to my interest to move them out of town during the summer. I returned the bees in the fall for several seasons, wintering them in father's back yard, and in a neighbor's when father's was full.

Finally I moved for good to twenty acres owned by my father. This ground later became my property, and was my home until a year ago when I moved to town, where I now live.

From the start I got my increase from natural swarming and the buying of bees, and purchased no queens until a few years ago, when I divided my colonies after the honey-flow in July, and purchased as many queens as I made divisions. I have followed this practice until now, excepting that I tried dividing in June this past season on a few colonies. I must say that I was impressed that this method is ahead of the late division. I made nine increase from two, and had four extracting-supers filled with honey, besides redividing several of the increase the first of August, when I made my regular increase. Doesn't this look better?

I put into winter quarters this fall nearly 500 colonies, wintering 140 in cellars, and the rest in my regular winter hives, which hold four colonies each.

Now, I have been successful as a whole during my beekeeping career; but you must not think that I have not had to work and study and plan. From the start I had to get ahead as best I could. It took money to buy supplies—in fact, for quite a while it took all and even more than I got from the bees from year to year. My father said I spent more than I earned, and so would never

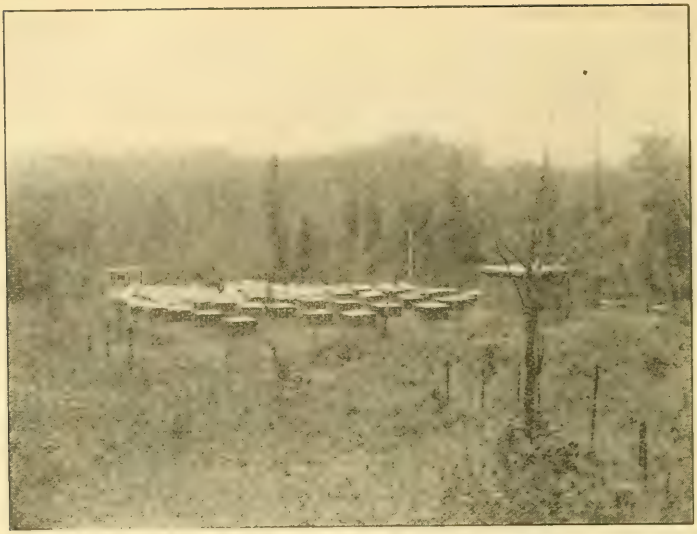


FIG. 3.—One of the outyards. Though situated right in the woods, the bees are never molested.

make any money. I realized this, but hoped to get to a point where I would not have to put it all into the business each year.

I economized by making my supplies in a nearby factory, lumber being very reasonable in price. But I surely would not advise any one who expects ever to have a large number of colonies to make his supplies by hand, for to handle large numbers successfully the hives and fixtures must be made right and of uniform size.

Bees that I purchased I always transferred into my own hives, excepting a lot of 104 purchased in hives of different make but uniform. These were reduced to about thirty, and the other bodies used as supers.

When I purchased bees, supplies, queens, or other necessary equipage, I almost invariably paid cash for them, borrowing the money at the bank if I did not have it. I think this method the most satisfactory to all concerned. In this way I have built up my business quicker, and have been able to accomplish much more and to do it much easier. One thing right here ere I forget: Don't let your business increase faster than your knowledge. Keep posted. Read all the bee-journals, and supply yourself with the best books on the subject.

The past season I managed three apiaries, doing nearly all the work except during the extracting and packing, when I hired one man. I have worked out a system of handling the bees, and find it only a pleasant pastime to handle four or five hundred colonies, and so am planning to increase to 700 the next season if all goes well. I might mention a few things that I believe are essential to the handling of large numbers with perfect ease:

1. A level ground, or at least a smooth one, with hives systematically arranged for easy access with wheelbarrow.

2. A honey-house perfectly tight with escapes in windows, so that all honey may be brought in at one time, warmed up, and extracted. What a pleasure to work stripped right down, with hardly a bee in the house, all because the supers are rid of bees by the use of the Porter bee-escape, the bee-escape working well because the brood is all hatched and a wood-wire queen-excluder placed on at the right time! I find it only a short job to put on the excluders or escapes; for after distributing them I have actually put on three a minute where there was only one super.

The reason I can separate the supers so easily is because the supers are uniform and of proper bee-space between. This is due in part to the fact that I clean the top of the frames and take out all burrs just before the first honey comes in. It is not a long job; and, oh the time it saves later! I also clean all extracting frames and supers the same way, using a carpenter's scraper similar to a putty-knife, but wider. The blade is very thin and of steel, and can be purchased for about 60 cents. The scrapings of the supers and hive-bodies will just about pay for labor; so you see it costs nothing, and it is done when you have nothing much to do except to watch the bees build up.

I use the Miller feeder to feed the bees after the crop is taken off. This is very easily done. After reducing the entrance I mix up sugar and water—two parts of sugar and one of water if for late feeding; and after weighing the hives (I guess the weight) I pour in the syrup at evening and the feeding is done. I take off the feeders with escapes after the feed has been taken down and they are ready for winter. I use a steam-heated honey-knife, and the latest Root four-frame hand extractor; but I expect to install a power extractor some day.

I use Root hive-tools, a four-inch copper smoker, and a bee-veil of my own make which I think has every thing to date beaten. This I will describe and illustrate in a later article.

I have not told how I went to work to do any of the things that are essential to success in this business. I know there are scores of little things that will come up that are not explained. I know that many attempting to do some things that I do may not fare just as I have. On the other hand, many have worked out an altogether different system which proves a success. My methods may not do for some other locality; but remember that ofttimes there is some little kink that really makes for the success of the entire system, and the locality is not altogether to blame. It would be impossible for me to try to explain here, step by step, how I proceed from spring to fall.

I am pretty sure I am right in feeding sugar instead of honey, for in this locality I know that sugar won't spread disease, and is a safe winter store. I know that the queen-excluder, properly manipulated, is not a honey-excluder, and is one of the greatest time-savers known. I know that the escape is indispensable when the excluder is used, and a nuisance when not. I know that a clean level yard is a wonderful help in taking off honey and at other work, and will not ordinarily cause any trouble in getting queens mated. I know, too, that in a well-lighted, commodious, tidily kept honey-house, free of bees, nearly twice the work can be accomplished, and the honey goes into the cans free from dirt or bees, and is really worth more on the market.

Now just a word to the beginners. It is said 90 per cent fail who enter the bee business. You expect to be among the 10 per cent who succeed. Success is a matter not so much of locality as it is of the man. If you are a good, clean, moral young man, full of ginger and ambition, and exercise some judgment, you will succeed in the bee business as in any other line. Don't think that the bees always work while you sleep. Remember that a little vim and push are required, even in this vocation.

East Jordan, Mich.

PERSONAL REACTIONS AND REWARDS

BY J. L. BYER

After receiving the editor's request that I contribute an article to the special number on experiences of prominent beekeepers, it was with reluctance that I finally consented to oblige him in this matter. In the first place, it seems that, after writing more or less steadily for a number of years, the beekeepers will have come to know all about my fads and fallacies without my retelling them; and, again, I rather object to the term "prominent beekeepers," knowing full well that many who have never written a line publicly have nevertheless a greater claim to the title, judging them by their success in the calling. In GLEANINGS, Jan. 1, 1913, an article was published from myself under the heading "Mistakes and Experiences of Beginners," and if I should repeat any thing at the present time that was published then, readers will have to bear with me; for in an article where personal references have to be made it will be impossible to do otherwise.

As all who know me are aware, my apiaries are not pretty to look at, since for the most part they were bought of different people and are, of necessity, in different patterns of hives. In fact, I have every thing from the regular eight-frame L. hive, which I regard as much too small for extracted-honey production, up to the twelve-frame Quinby, or Jumbo, as some would call it. Having these different kinds of hives is not a matter of choice; but as I started beekeeping with no funds on hand, and no other assets than a good wife and three children, I was no chooser in the matter of kinds of hives, and bought bees in



FIG. 1.—Part of one of J. L. Byer's apiaries in double-walled hives permanently packed.

whatever hives they happened to be. In the course of a few years I cleaned up the various small lots around us, the owners finding the bees unprofitable with the limited attention usually given to such stock by farmers. These few remarks will show that,



FIG. 2.—View looking south from the apiary shown in Fig. 1.

in the main, very little increase was made the first few years I started to keep bees for a living aside from buying the bees outright. At that time I could buy good strong colonies at from $3.00 to $5.00 each; and I



FIG. 3.—Corner of one of J. L. Byer's apiaries of 250 colonies; hives single-walled; natural protection afforded by elevation to north, and bush on other sides.

still believe that, for stocking outyards as well as making increase at such out-apiaries, this is still the cheapest plan, provided bees can be bought as cheap as they could be twelve or fourteen years ago. At that time a few beekeepers of my acquaintance allowed much natural swarming, and would often offer me strong first swarms at $1.00 each. I would take the hives filled with full sheets of foundation; and when bees were in them I would go some night and bring them home. At this time I was still on the farm, and working there nearly every day; and many a night have I been on the road till early morning on trips bringing home bees after I had worked hard all day on the farm, and was expected to be ready for duty at 5 A. M. again.

But things have now changed; and instead of buying bees at three or four dollars a colony, or swarms at one dollar, double those prices will be asked, and often it is hard to get them at any price. Just a word of caution to prospective purchasers of swarms in localities more favored than ours:

In leaving hives for the bees to be put in, be sure that all the frames are correctly spaced, and fastened securely in some manner; and if foundation is used instead of combs, see that all sheets are well wired. If self-spacing frames are used, the first caution is unnecessary; but in all cases foundation should be well secured. Neglect of these small matters will lead to a lot of trouble, as I found to my sorrow on my first few trials of getting swarms.

From the very first I started one outyard in addition to the bees I placed at home. This apiary already had some bees belonging to my father. This made it necessary to tackle at once the problems incidental to outyard work; and while the methods used to control swarming are beyond the province of this article, yet since the matter of making increase is one of the items season-



FIG. 4.—Same apiary as shown in Fig. 3, packed for winter, two hives in a case, all facing south.



FIG. 5.—Part of J. L. Byer's apiary shown in Figs. 3 and 4, taken later when covered with snow.



FIG. 6.—Motor boat used at the apiary shown in Figs. 3, 4, and 5.

able at the present time I shall say a few words along that line. The fact is apparent at once, even if we never ran outyards, that natural swarming is not to be considered at all in the matter of making increase at outyards; and as losses are bound to occur there as well as at home yards, we soon had to decide the best way to go about making up these losses. Numerous plans of dividing up the colonies into two or more nuclei were tried for a while, as my grandfather, who was a successful beekeeper, had used this method in my earlier days when I had little thought of keeping bees for a living. But I soon discarded the plan for different reasons, and in the end settled on the nucleus system now commonly in use by a good many. This plan differs from the old-time dividing scheme in that all brood is saved, and the colony from which the increase is being made is not perceptibly weakened or disorganized for the gathering of a crop of honey.

Briefly the plan is as follows. I simply give it for the benefit of beginners, knowing that the system is a well-known one. Either raise young queens or buy enough to have one for each nucleus you wish to form for purposes of increase. Seven or eight days before your young queens are ready to hatch, or that long before you are quite sure of receiving the ones you have ordered, go to a colony strong in bees and brood, and, after finding the queen and placing the comb she is on at one side, lift up four frames with brood and place them in the upper story with a queen-excluding zinc between the two stories. Do this with as many colonies as you wish to increase, filling with worker combs or full sheets of wired foundation the empty space in the brood-nest from which the combs of brood were taken. Seven or eight days later, when your queens arrive, go to these colonies and place the four frames of brood with all the adhering bees you can take with them into a hive already prepared. Place this hive on its stand, and at once introduce the young queen to them by any of the well-known methods. As you are dealing with nearly all young bees in the nucleus (any old field bees in the recently formed nucleus will at once fly back to the old stand), introduction will be successful in nearly every case. In fact, I cannot recall having lost a single queen when introducing to nuclei except in one or two cases when the old queen had got up through the excluder, and had then been carried into the nucleus on the combs of brood. Many would advise using less than four combs; but, all things considered, I prefer that number instead. There is no mistake in making a colony *too* strong; but thousands of mistakes are made by making them too *weak*. In an ordinary season a nucleus made as I have described will build up into a strong colony



FIG. 7.—25 miles from home at 6 A. M., on the banks of a trout-stream.



Luncheon at the Colorado Honey-producers' Association, at the annual meeting, Dec. 29, 1914. Seventy were present. The National meets here Feb. 16, 17, 18, 1915.

for winter without any further fussing aside from filling out the vacant space in the hive with foundation or comb as it is required. This increase should be made only at the time of a honey-flow, and I prefer to have the work done just after clover has started to yield nicely. Drawing brood from very strong colonies often heads off swarming by giving the queen lots of room in the brood-nest just when it is needed; and the honey-storing power of the colony so treated will be reduced very little as compared with other methods which often totally disorganize a colony for a few days at least—often for a much longer time. While this plan is old, I firmly believe that it is the cheapest method yet known, when all the factors are considered, such as labor, depreciation in amount of honey stored by the parent colony, and absence of worry over all methods used in which natural swarming is in any way to be considered.

Some of the most frequent questions asked me are as to methods of wintering practiced, and the kinds of hives I use. The last has already been answered; but I might add that, in so far as personal preferences are concerned, if starting all over again, and I had it in my power to choose any kind of hive I wish, I certainly would take the ten-frame Quinby or Jumbo hive for extracted-honey production. Not being a comb-honey producer I would not care to give any opinion in that line. But I always advise *beginners* to use the ten-frame L. hive for extracted honey, as it is a standard make, and can be secured at any time from all dealers in bee-supplies.

I have even been asked more than once by letter, "Just how much money have you made in beekeeping?" This question can be answered by a little story I often heard from a well-known character who used to live near us. He used to say, "Canada is a splendid country to get along in. I came from England forty years ago with nothing, and have held my own remarkably well. I have nothing yet." This might be a slight exaggeration in my case, but not so much after all, as I make no claims to accumulating much of this world's goods. Starting with nothing, and raising and educating a family, requires considerable income; but even if very little money has come our way, we have enjoyed the work, and have had enough to eat and wear. What more could be desired, any way? Previous to this year we lived in a rented place; but we have now purchased two acres of land and erected a modest house 28 by 30, having many conveniences, such as hot and cold water in all three stories, with a fully equipped bath-

room—something we have never enjoyed before, and something that is altogether too scarce in homes of many people who can afford such things better than we can.

In regard to wintering, I prefer the permamently packed hive both for winter and summer, and the first cost of such hives is all that would keep me from using them altogether. Two years ago I purchased a camera; and, although the veriest greenhorn in photographic matters, for some reason I have had fair success in its use, and very rarely fail in getting a good negative.

Fig. 1 shows part of one apiary in which the bees are in the kind of hives I prefer—always ready for winter in so far as packing is concerned, except placing a cushion of sawdust on top in November. The location shown is a natural beauty spot. Fig. 2 shows a view from this yard looking south. Fig. 3 shows part of one apiary which has 250 colonies in it. It is needless to say this picture was taken a year ago. We didn't need to pile supers very high in 1914, although this yard was the only one that gave us any surplus at all this year—about 50 lbs. per colony. The yard is sheltered on all sides as shown, with timber on three sides and high rocks on the other. Fig. 4 shows a small corner of this same apiary packed for winter. I do not like the four-hive cases. They are altogether too bulky to handle; and then, again, I like a south entrance. As will be seen, the cases we use here take but two hives each. Fig. 5 shows the same apiary when covered with snow a year ago. At this date (Jan. 2, 1915) they are covered much deeper than the picture shows. The thermometer goes to 40 below zero here, so I am not worrying about snow over hives. Fig. 6 shows the motor boat we use at that yard. The gentleman at the right is my father, who stays at the yard up there during the summer, my son also being there in the busy season. Fig. 7 shows my youngest lad, my two eldest girls, and a cousin, near a trout stream 25 miles from home at early morn of a summer's day. One of my great weaknesses is a love for fishing—especially fishing for the "speckled beauties," and on the occasion on which the picture was taken the other members of the party were persuaded to go for a picnic so that the pater could have a day off at his beloved sport.

I might yet add, in connection with the boat shown, that it is used to go to town five miles away for groceries, etc. Then it is often used for pleasure as well, as a run down the river to the bay at the close of a day's work is splendid recreation, to say nothing of doing a bit of fishing now and then as occasion offers. It is 24 feet long, and has a twin-cylinder six-horse-power engine, capable of developing about twelve miles an hour. In locations where navigable waters are within reach, this means of locomotion is far ahead of the auto in many respects, especially in economy of first cost, upkeep, and roads. The latter never get "muddy," at least with the boat, even if they are sometimes "rough."

Markham, Ont.

A REMARKABLE START OF A REMARKABLE CAREER

BY DR. C. C. MILLER

When I was a boy I had a bumblebees' nest in a cigar-box up in the haymow. I don't think that had any thing to do with my being a beekeeper. Later I helped my stepfather carry home, one night, a colony of bees in a box hive before the days of movable-frame hives. It was set on top of a "bee-palace," a barn-like affair big enough to hold half a dozen colonies. The expectation was that the bees would build down and fill the "palace," and then the door could be opened and a nice cake of honey cut out whenever desired. But the bees didn't seem to have a full understanding of what was expected of them, and died without building down. I don't remember that I had the slightest interest in the bees or their untimely demise.

Not till I was thirty years old was any interest in bees awakened. That was in 1861, when on a day next to the Fourth of July a swarm of bees came sailing across Marengo. Seeing them, my wife began to throw water upon them. I don't know how much effect that had, but at any rate she got those bees into a sugar-barrel. I was in Chicago at the time; but when I got home I began at once to be interested in beekeeping. A barrel didn't seem the best lodging for bees, and the next spring I made box hives, Quinby style, and had them occupied. Holes were bored through the top of the hive, and six-pound boxes were placed on top, with a telescope cover over all.

The bees I had at that time were such as probably most of the beekeepers of the present day have never seen—pure, unadulterated blacks. These remained in their purity for five years, when in 1866 I got my first Italian queen. That gave me an opportunity such as cannot easily be had at the present day to know the difference be-

tween blacks and Italians. Whatever may be the case in Switzerland and other lands across the sea, one of the things that I know for certain is that Italians are far and away ahead of the blacks that I had, and I made a good bargain when I paid $10.00 for an Italian queen.

Some things in which blacks differed from Italians would seem strange to many a beekeeper of to-day. I wonder, for instance, how many of my readers ever saw a good case of "roping down." When a frame covered with blacks was held up by one corner, the bees would run down over one another and string down from the lower corner until they formed a "rope" six or eight inches long. The important difference, however, was the difference in the amount of honey gathered.

In 1863 I had begun to use a movable-frame hive having a frame of odd size, the dimensions of which I do not now remember; but in 1870 I adopted what I supposed was the regular Langstroth hive. In one respect it was more "regular" than the Langstroth, for there were no fractions in the dimensions of the frame. It was 18 x 9, while the Langstroth is ⅜ inch shorter and ⅛ inch deeper. That little difference in size seems hardly worth considering, yet when later I came to change to the regular size it cost no small sum in money and trouble.

In 1870 I got a honey-extractor, the Peabody, the best then known. There was no framework revolving in a can, but can and all revolved. A handle was on top, and you leaned over and made it revolve, and you had to be careful when the extractor was in full motion lest the projecting frame should strike fingers or clothing.

In 1871, having bought several colonies at different times, I succeeded in having fifty hives to go into cellar for winter, each hive containing bees, although some of the hives contained scarcely more than nuclei. By the time the season opened in 1872 I had two colonies left! How was that for encouragement after eleven years' work? But as I was keeping bees only for the fun of it, it didn't trouble me, and I went at it afresh.

But why give in detail all the ups and downs of my career in getting started as a beekeeper? Are they not all duly recorded in the chronicles of my experience in the book "Fifty Years among the Bees"?

In 1877 I returned to comb honey, using pound sections. They were four-piece, there being as yet no one-piece. For 38 seasons I have continued the production of sections; but for the past two years I have extracted some 500 pounds each year. If I were to begin afresh it is quite possible I should extract mostly or altogether, chiefly because it would be doing just so much toward having more honey eaten, and so having a stronger nation!

Although beekeeping was for a long time only a side line, yet as the years went by I began to dream of a time when all my time could be employed in working with bees, planning about them or writing about them. In 1878 that dream became a reality, and I have now passed through 37 seasons as a specialist in beekeeping. And what a good time I've had! Some talk about the enthusiasm of the beginner, and the better results obtained because of that enthusiasm. All fudge—at least in my case. Last summer, my 54th summer with them, I was just as much interested in working with bees, just as keen in working out new problems with them, and, if you must insist on my telling it, just about as likely to try some fool thing with them that would turn out all wrong, and withal just as grateful to God for the enjoyment of it all, as I was in the middle of the past century.

Young fellow, if you have no other interest in bees than the money to be made out of them, let 'em alone. But if you're so built as to love bees, to think bees, to dream bees, go to it; your chance to-day is better than when I began. And if you want just a word of advice from one who would be glad to begin it all over again, let me advise you to *breed from the best all the time for all your colonies.*

HOW NOT TO DO AND HOW TO DO: BEGINNING IN BEEKEEPING

BY R. F. HOLTERMANN

[The following article is the first of a series by R. F. Holtermann upon the general subject, "How Not to Do and How to Do." The second of the series will be published in an early number.—ED.]

When one is about to undertake a certain piece of work it is his duty to do that work thoroughly and expeditiously. It should be a fixed principle to expend no more time and energy upon an operation than necessary, for act upon act in time becomes a habit, and such a habit results in making, to a greater or less extent, success or failure of the work. Let me illustrate, and perhaps I may be pardoned for referring to myself. Many years ago, when times were hard, and I was a young man with but little ready

money, I wanted work for the winter. A friend obtained work for me at 85 cents a day in a factory making bee-supplies and other goods. After paying three dollars a week for my board there was not very much left for other expenses; but I took the job, beginning about Dec. 1. In my work I saw better ways of doing things—methods by means of which time could be saved and sometimes better work done. The result was that by spring I secured $1.50 per day, and worked myself up to a salary of $1500 a year.

To repeat, it is a waste to spend more time and energy in any operation than necessary. It is not only wasteful at the time, but tends to bad and slipshod habits in work. If one requires the exercise he had better take it with a set of dumbbells or Indian clubs. From observation I should say few bear this in mind when doing their work.

If we survey the horizon of our experience and make an analysis of our contact with our fellow-man, or even examine ourselves, are we not forced to the conclusion that people are a good deal better at telling how not to do things than they are at telling how to do them? True, with criticism the question is not one of the spirit in which it is offered, but is it just and fair—that is, when the subject of criticism is considered? On the other hand, when the critic is considered the question is, "In what spirit do I criticise?" In taking up the subject for the beginner, "How Not to Do and How to Do," I want to point out, in no spirit of fault-finding, the wrong way to do things, as a means to educate and fix wrong methods upon the attention, and then, as far as lies in my power, to give a better method.

HOW NOT TO DO.

There are many things which lead up to making one decide to engage in beekeeping. Sometimes the imagination has run riot with reason; perhaps a sanguine temperament has before the mind's eye a splendid honey season to the exclusion of any of the poor seasons where the profits are nothing, and where the gross receipts are looked upon as net profits. One thing is sure—that no one has any right, if he desires to act in wisdom, in thinking that he can make a living by keeping bees unless he has a practical training in the business. It is true that there are many successful beekeepers who have started in a small way and worked up until their success has warranted them in making beekeeping their main occupation; and what has been done in the past can, no doubt, be done again; but such persons secure their practical knowledge at their own expense. Their location is favorable, and they are thorough and persistent in what they do. That is the foundation of their success. One or more good text-books should be studied, and bee-papers taken. This is within the reach of almost every one.

In beginning beekeeping few know at what season to begin. One time of the year appears to be as good as another. Time and again I have had people write to me wanting to buy bees at the close of the honey-flow when any profits for the next ten months were entirely out of the question; and in all my years of beekeeping I have never sold them a colony after the honey-flow was over, because I feel they were unconsciously acting unwisely.

Many others want to start on the cheap scale. Of course, if a success is not to be made of the undertaking, the cheaper one starts the better; but a bad outfit with which to start a business is a severe handicap. Box hives are bought, and these in the hands of a novice are often greatly injured when



FIG. 1.—Weighing a colony Don't guess at it.

transferring. I have known queenless colonies to be sold to a beginner, and afterward these have died without any cause apparent to the possessor. Then improper hives are often used with improper bee-spacing. However, the first step toward having bees is either to steal them, have them come to

you in the shape of a swarm, have some one make you a present of them, or buy them. In this article I purpose telling how to select them during daylight.

I remember when I first bought bees that I thought the weight of great value. Was not honey worth so much a pound? Did not the weight indicate honey? Why, yes (I have a feeling that way still, and honey is honey; and with me it is a rare thing for the apiary on an average to have too much honey). The novice then goes through the apiary, lifting the hives and selecting the heaviest. This is illustrated in Fig. 1 by weighing the colony. A nicely painted hive will also attract the beginner. But these points take second place.

HOW TO SELECT.

In purchasing bees, other things being about equal, I should want to buy them in the Langstroth hive. There are other hives as good as this for honey production. In fact, I would gladly have the frame an inch deeper, or even a little more, or a little shorter and deeper; but when I come to consider the handicap in getting supplies, especially when there is a rush, and the supply-dealer is fully occupied with getting out a regular line of goods, then I see the wisdom of using regular lines. Then if I or those after me want to sell the bees and fixtures, and I look back upon an experience of thirty years in beekeeping, then I know that the bees in the Langstroth hives, unless in a very restricted area, sell the best and bring the best prices. I know of many instances where beginners have acted contrary to advice, and in years to come they or their widows and families have found out the correctness of this statement. I would take the largest Langstroth hive I could get; but take a Langstroth, even if the hive is only an eight-frame. The frames, at least, are correct, and can be put into a larger hive.

But I would sooner buy a colony in another hive, if it were numerically strong in bees and brood, than buy a weak one in the Langstroth. If I were in the apiary on a fine day when the bees are flying, gathering honey and pollen in fruit-bloom (and that is the season to buy) I would select for my inspection the colonies into which the most bees flew in a minute. This is illustrated in Fig. 2. Move to one side so as not to impede the bees. This will give proportionate strength of the bees. Select the best.

Next take the smoker, or have the beekeeper take it, and examine the contents of the hive. If the combs cannot be taken out because they are not straight, then they are little if any better than a box hive. In fact, for transferring they may be worse.

If the combs are movable, examine for brood—capped, uncapped, and eggs—and



FIG. 2.—The beginner counting the number of bees entering in a minute.

the more of this the better, for it will soon be flying bees. If the colony is strong there will doubtless be drone brood as well as worker brood. There will be found two sizes of cells—one a little larger than the other. The brood in the larger will be capped rounding in contrast to the smaller capped flat. That in the larger cells is drone brood, and is undesirable. The drone comb is objectionable because it enables the queen to deposit drone eggs in the cells, and the bees to rear drone brood. The drones, for their production, use the energy of the bees. They use up stores in their production, but they never gather stores. A little poorer colony with worker comb is better.

Up to this point I have said nothing about the variety of bees. Give Italians the preference. They are a great deal better than the common black bee. Owing to the prevalence of European foul brood they are probably better than Carniolan bees; and they are better than Carniolan for the inexperienced, because it takes more careful management to keep them from swarming. A colony of black bees, if otherwise much superior, I should prefer, because it can be

changed into an Italian in six to eight weeks by introducing an Italian queen.

It is only after the above points have been considered that I would compare honey in the hives. A hive should not have less than 5 pounds of honey in it at any time —better even more; but a colony may have so much honey in the hive that the queen will not be able to find empty cells for depositing eggs. It is an easy matter to feed a colony sugar syrup if short of stores; but if the colony is weak, the mere fact of its having stores in the hive does not enable the bees to feed and keep warm a large quantity of brood.

If the beginner can buy bees from a reliable person, he should put the onus upon him. Probably he will not sell his best colonies, but he will deal frankly.

Brantford, Can.

A GLANCE AT A FEW POINTS IN MY EXPERIENCE FROM A ONE TO 3000 COLONY BEE BUSINESS

BY J. J. WILDER

I was a successful beekeeper before I ever saw or knew the advantages of modern hives as they are now put out. I was using a crude movable-frame hive of my own get-up, and several sizes of them. At this time I had about 100 colonies, the most of which were in my own make of hives, and in one yard where my home or mother yard is now located. I am going to skip over this part of my beekeeping life, which started from only one colony in a box hive, which was a present to me.

It was about fifteen years ago when I saw my first modern hive, and could look into its merits. I saw that it was the thing to have, and obtained a catalog at once, also some bee literature, and spent my idle moments that winter in posting myself. During the time I hauled into the home yard about fifty colonies in box hives. I had been making good crops of honey all along, and it brought a good price. All returns were placed in the bank, to be expended to the best advantage in my bee business. So I bought some modern hives and put them up during that winter; and when spring came on, and the bees started to gathering nectar, I tried my hand at transferring, and I made a good job of it. Here is where I call the beginning of my beekeeping life. At this time I was making only a moderate salary; but the bees were given all my spare time, which was not much; but they never suffered from neglect.

INCREASE.

Increase was the next object. The colonies increased naturally somewhat; but this was not practiced long before I resorted to my own way of increasing—that of dividing up very strong colonies, especially those preparing to swarm, into two equal parts, making sure the queen went with the half to the new stand if possible, and that the other half had one or more queen-cells under development. This way of making increase is kept up until this day, and all along I have found it the very best, all things taken under consideration. If more increase is needed it is made in the same manner in the fall or late summer; but nothing but very strong heavy colonies are used for this purpose. Never in my life did I sacrifice a crop of honey for the sole purpose of making increase. When the very strongest colonies (or those likely to swarm) divided up, did not make sufficient increase, both in the spring and fall, I purchased bees in box hives or any other kind, for the extra increase. My mind has never been changed about this, for I believe it is the most economical and satisfactory way a beekeeper can lead out.

CONTROLLING INCREASE.

In spite of progress I came fully to the point, as well as all beekeepers do, where the emergency brakes have to be applied. However, I did not come to it suddenly, for the let-up was a little slow. The bees came more and more under my subjection as I advanced, for I knew that I would reach this point sooner or later. My first step was to ventilate well at the bottom, or about one inch at each end of the hive, which secured me better results in quality and quantity of honey. Then more supers or storing room came into play than we might ordinarily expect. Also in making the weekly rounds to the apiaries during the honey-flow queen-cells were removed where increase was not wanted; and so, under such treatment, the bees have gradually grown out of their natural desire to swarm.

THE STOCK.

The point of stock is a great factor, and must receive some consideration. Under the best and most severe methods in certain localities or some seasons, certain races of bees will swarm too much, and such stock should not be adopted nor stock bearing the



FIG. 1.—J. J. Wilder's first yard in the process of being transferred.

reputation of being great swarmers. It is not worth while to obtain such stock and expect to breed or run this natural inclination out of it, for it will give you trouble sooner or later. To save experimenting and a lot of dissatisfaction let me say that you will not find such good traits in any bees that breed up slowly and then when the queens do become very active, and the colony reaches a very high pitch, soon fall back and proceed throughout the season in this up-and-down manner. Trouble is practically sure to follow at or near these high points, while no honey is secured at the low points.

What we want is a strain that will breed up early in the spring, and hold their own throughout the season. Such bees are good honey-gatherers, and almost non-swarmers. I have found the gray Caucasians far superior in these points to any of the other races of bees.

OUT-APIARIES.

Here was the critical point in my beekeeping life, and one that required more careful study than any other in order to proceed properly. Had it not been that the business was so well on my mind and heart I might have done so if I had proceeded with nothing definite as to the extent of it. Friends were advising me not to start out on such a venture. Then, too, I had been out over the country and made investigation as to honey-plants in different sections. Also, I had visited some progressive beekeepers. These things, together with what I had read from bee publications, were sources of encouragement to lead me out and on.

Well, I started out with willing hands. Each year for a long time I increased my bees and outyards nearly 100 per cent. I established the outyards from 2½ to 3½ miles apart, and extended the line of yards in six different directions as convenient to highways and railroads as possible. Some of the remote yards at the end of these lines were 30 miles from the home yard. During this time I had erected and equipped a good honey-house at the home yard, and had found that it was more economical to haul all honey to this house to be packed. This business was run for chunk honey solely, as the grade of honey would suit such packing better.

Our business was incomplete, and we went to the new field, about 200 miles away, where the honey-flow was suitable, solely for



FIG. 2.—The first yard just after transferring.



FIG. 3.—J. J. Wilder's 23d yard, the home yard in the new field.

the production of comb honey in one-pound sections; and after establishing the home yard and packing-house at a good shipping-point we began circling outyards around it at a distance of three miles apart, hauling all the honey to the one packing-house to be prepared for market. As soon as the territory got too remote we went some twenty miles away and did the same thing; and when this branch was similarly established we went twenty miles further and established a similar branch. These three branches are operated solely for comb honey, and the honey-flow is about the same at each yard.

The business was yet not complete, and we went 100 miles from the home or mother yard and established another packing-house, and around this established another series of apiaries, all run solely for extracted honey, which the sources of honey mostly justified. When this branch was established we went from it thirty miles and established another branch with outyards arranged in the same manner, and all run for extracted. Now our bee business is complete and the 3000-colony point reached, which is the extent of the business at present, and what I set out to accomplish.

THE LABOR.

The season I established my first outyard I hired some experienced help to do the necessary apiary work I could not do alone at odd times. This cost me as much as or more than I was making; but I had a job I could not lay down and pick up again, and I had to hold to it, for a while at least. The following season I hired some more experienced help for the swarming season; and at the close of this season I had five apiaries established consisting of over 300 colonies. The next season I gave up my job, and went to the bees to give them my entire attention. I needed some raw help through the rush of the season, and for that purpose I picked



FIG. 4.—J. J. Wilder's 53d yard, the last one.

out a promising boy about 17 years old whom I thought I could make an apiarist. During his services with me I schooled him in bee culture, and the next season I put him on as a regular helper. But I needed more raw help, and so I advertised for it in a farm paper. I had my pick of a lot of applications as a result, and took the farmer boys who had never known any thing about city life, jobs, or public work, but had always been right on the farm with their parents. Out of the best of these, from time to time I have made apiarists and good reliable helpers in the business. I have found such help by far the best and most reliable. Later I tried considerable experienced help which never resulted satisfactorily. So I abandoned it entirely, and settled down to hire raw help and give it my own training. The best way I have found to handle reliable experienced helpers is to let them operate bees on shares, allowing them one-half for the other, except increase, which I hold. This allows them a chance to make more than they could in working for wages only. Where such an apiarist is competent a number of apiaries are turned over to him to operate, and he hires such help as he needs; but over all these must be a general overseer whose duty it is to see that the bees nowhere lack attention.

RETURNS.

I have never put one cent in bees that they did not make under my care. The fact is, I never had it, and I was $227 in debt when I started beekeeping. This debt I had contracted three years previous, while in school, and nothing fell to my lot in the way of this world's goods; but I did plan for the bees to pay their own way and helped them do it. From the very first colony the bees paid their own accounts; but there was not much expense about the first 100 colonies, as their supplies were crude, and only lumber from the trash-piles of lumber-yards was used in making the hives.

I managed to live, and not draw any money out of the bees' treasury for outside purposes—that is, for any thing except for the bees, until I had over 300 colonies. Of course this gave them a good start, and ever since then I have drawn on the bees for all expenses; and, later, from time to time I have drawn on them for capital to make outside investments to the amount of over $10,000, and my net income from my entire bee business is over $4000 annually. All accounts against the business are settled when the returns are in at the end of each season.

Cordele, Ga.

WHAT FIVE DECADES HAVE TAUGHT ME

BY J. E. CRANE

As I look back over the years, it seems a long time since I first began beekeeping, for it is now just forty-nine years ago this month since I bought my first colony. It was a small colony of Italian bees, about half full of combs, for which I agreed to pay $25.00. A little later my brother bought another, and we went into company in the bee business. By the last of March we had bought two more colonies of black bees in box hives.

These I thought I could readily transfer into movable-frame hives which we had made for this purpose. I had read all about how to do it by driving the bees out first, and embraced the earliest opportunity to do so while the weather was yet cold. Alas! the bees did not drive worth a cent; and I found after drumming for an hour or more that they refused to go up into the hive or box on top of the hive as I was told they would. In fact, the writers I had consulted had failed to state that driving bees out of their hive should be done in summer instead of during cold weather. How often writers fail to mention some little matter that is essential to success, and then wonder that others do not succeed as well as they do!

Later we succeeded in transferring, and on the 4th of July looked up the queens of those black colonies, and soon introduced Italian queens in their places; but the season went by without a single new swarm or a pound of surplus honey. We increased our stock, however, by buying other colonies, and by the next spring we had ten or twelve hives of bees—not very strong but healthy. The season was good, and we made some increase and secured about 100 lbs. of surplus honey to the colony.

During the previous winter I had made glass boxes enough when filled to weigh 500 pounds. My father told me I had made up enough boxes to last ten years; but when he found we did not have half enough for the first season he changed his mind and thought he would like some Italian bees, and offered $75 for the colony I first bought and its increase, and $50 more for the honey they had made. I did not

care to sell, but bought a number of Italian colonies of Moses Quinby for him, and took him in as a partner.

We began sowing alsike that year, which I believe was the first sown in Vermont. The season of 1868 was not as great a success as the previous year; but we made some increase and secured some surplus. In the fall I bought twenty colonies for myself; and as our company had some fifty we began the next season with seventy colonies. The season was propitious, and we secured some 3000 lbs. of most beautiful honey, nearly all in glass boxes that I had made ready the previous winter. I piled this honey in the cellar in a very artistic way, as I thought, and used to feast my eyes on it and show it with pride to my neighbors. Notices of this great crop of honey were published in various papers. In addition to the crop of comb honey I had made a honey-extractor and secured with it 240 lbs. of extracted honey from one hive—an unheard-of yield at that time.

The next spring I was married, and moved to a small farm several miles from my early home, taking my share of the bees (some fifty colonies) with me. During the spring my father was taken sick, and he turned over his share of bees (about twenty colonies) to me, so I started the season with seventy colonies; but it was hot and dry. There was no white clover that year; but the drouth shortened the corollas of the red clover so bees worked on it as freely as they usually do on white clover, and I got a small crop of honey with a few swarms. The next season was better, and I secured more surplus honey as well as increase.

I did not attempt in those years to increase very fast, thinking it better to get a moderate increase with a fair crop of honey than to make a large increase and little honey. I have since noticed that those who become excited when they get one good crop, or hear of some one who has, and make a rapid increase, are almost sure to go out of the business later. There are too many lean, ill-favored kine to eat up the well-favored kine to make it pay.

The year 1872 was propitious, and I secured some 4000 lbs. of comb honey in glass, which sold in the New York markets for *forty cents a pound.* I also increased my stock of bees.

After a time I had more bees than I thought should be kept in one place, and I started my first outyard with a good many new experiences. Later a cousin came to me and wanted to sell me his yard of bees; and as I wanted to occupy the territory where they were located I bought him out; and so one and another, for various causes, came to me, wanting to sell their bees. I see now that most of my outyards were started in this way by buying small or large yards. This method of increase has its advantages as well as its disadvantages. The yard to be bought often has a different style of frame from the one the purchaser has; or if it is the same style, the frames may be one-fourth inch longer or a little deeper, so as to bother if they get mixed with the purchaser's. They may contain an unnecessary amount of drone comb. In one yard we bought, almost the first thing I did was to prune out the worse than useless drone comb. After leaving all that was necessary I melted up what I had cut out, and made some 70 lbs. of beeswax from it.

The advantages of buying a yard of bees is that you can usually buy much cheaper than you can make new hives and frames and fill them with foundation and bees. I find I have usually secured enough surplus honey the first season to pay for the bees, besides more or less increase. Many want to sell after a poor year; and as the next is likely to be a good one, if you buy you are in the swim. In one case I bought a small yard and secured enough honey from it to pay for it twice over, besides doubling the original number of colonies the first season.

As I have always lived where the cellar of the house was in clay, and rather damp, I have wintered mostly on summer stands in rather large and clumsy double-walled hives. Still I have sometimes had success in wintering indoors, and have nearly 100 colonies in my cellar at the present time. Cellar wintering is much more economical in food than outdoors. Both methods have their advantages as well as drawbacks.

I have always used an open-end frame, and now use almost exclusively the Langstroth standard size. I do not like the Hoffman closed-end frames, perhaps in part because I have never been accustomed to them. I should judge there are two or three times as many of them in use, or two or three times as many beekeepers using them at the present time, as of the open-end frame, judging from my experience in inspection work.

If the follower-board were made more substantially so it could be removed before trying to remove the combs they would work very well; but I most often find the follower-board of ⅜-inch stuff, where I find them at all, and so glued in with propolis that they usually tear apart before they come out.

If these hives were kept free of propolis

they would work better; but the average beekeeper does not keep bees that way.

If I have any advice to offer a beginner it would be: Get a standard hive that suits you, and then stick to it. It may not be the best, but it will doubtless be better than to keep changing.

Middlebury, Vt.

BRINGING BEES HOME IN A SHIRT

BY WM. ROSEMERGEY

One day last month a friend and I went out to find a bee-tree. We got up on the mountain about two miles and walked right up to a swarm on a little sapling. I tried to cut it off near the ground; but when nearly cut through it went over and the bees all fell to the ground. They seemed quite cross, so I scattered a little thin honey on them and retired for a little while. About fifty yards away we found a big hemlock cut down, and saw that some one had taken the honey. So we came to the conclusion that our swarm had come from there.

We went back to look at the bees. They were in the air, but soon settled on the bark of a tree about six feet from the ground. My friend wanted that swarm of bees, but we did not know how to get them off, and had nothing to put them in unless we could get them into a shirt (I carried one swarm four miles in a shirt three years ago).

Well, to begin operations I took my bee-hunting feeder, scooped a few bees off the tree, and found the queen. Then I clipped her wing and set her and a few bees in the feeder on a limb where I wished them to settle; but the bees flew back to the tree, and the queen fell to the ground. I picked her up and replaced her and a few bees on the limb. This time she got out and I did not see her. I soon saw that she was gone, however; and, without moving my feet, I stooped down and began looking for her among the leaves. The bees also joined in the search and closed in around me. My friend said he thought they would swarm on my head; so, not wanting that experience, I stood up, and, to my surprise, the bees were clustering on my legs and body. Crawling upward they got around my neck. I imagined I looked like a picture I saw in GLEANINGS some time ago.

My companion began looking for the queen on my clothing. My coat was off, and my vest open. He finally saw her go into the inside pocket of my vest, so I thought the best thing to do was to try to get the vest off, which I succeeded in doing by being very careful not to hurt the bees. Then I hung the vest on the end of a limb and stepped back a few paces, when the bees soon left me and went to the vest. In a little while all was quiet. My friend took off his open-front shirt. We tied a knot in each sleeve, and, holding two corners each, got under the vest, brought the four corners together at the top, and that swarm was fed and clothed without giving us a sting.

On June 4 I opened a four-frame nucleus to cut out some cells, but had made a mistake of one day, as a queen had hatched and three cells were torn open. The queen was removed from one; the next was dead in her cell, and the newly hatched queen was in the act of stinging the third when I got my eyes on her. She was in just about the same position as a queen depositing an egg in a cell. I rescued the queen in the cell, put a little wax on the hole, and caged the cell with three others, and they all hatched in a day or two.

Mayfield, Pa.

A NUMBER OF PRACTICAL WAYS OF USING THE BEE-ESCAPE BOARD

BY J. C. PARKS

As a super-cover I find the bee-escape board with a ⅜-inch rim as regularly made by bee-supply manufacturers to be more satisfactory than the regular super-cover or a wire-screen super-cover. The former is too fragile and too easily warped out of shape, and the latter is always so glued to the frames with propolis that in prying it off one soon bends the screen and destroys the bee-space.

If the beekeeper wants a sealed cover he can just lay a small piece of tin or thin wood over the hole; or if he is a crank about upward ventilation he can cover the hole with a piece of thin foundation, press a piece of wire cloth down on that, then cover with burlap and put on the telescope cover. The bees will gnaw through the foundation and make as large an opening as they desire. As colder weather comes on they will begin to close it up gradually, but will never close it entirely unless there is a very large entrance, or it has some small opening somewhere else.

For feeding, the escape-board is very convenient. Just take a 5-lb. friction-top pail and punch about three small holes in its cover near one edge. Make a mark on one side of the pail, so that, when you put on the cover, you can let the holes you have punched come on the same side as the mark. Then when you invert the pail you can always tell when these holes are over the hole in the board.

The reason for punching the holes near one edge is that, if you wish to put two pails on at once, the bees can get at both of them.

When feeding, put on an empty hive body or super, and the hive-cover over that; and if the weather is cool, packing should be put around the pails.

If the hole in the escape-board comes directly over the cluster, thick syrup can be fed in as cold weather as we ever have in Alabama. If you wish to feed, slowly stop up with wax one or more of the holes in the pail cover.

To feed hard candy, just lay it over the escape hole, or partly so; put on your packing, and the bees will cluster right on the candy.

To introduce by the queen-cage method, turn the board rim side down; put the cage in the hole, wire cloth down. Close the hive, and do not open it for a week; and, nine times out of ten, your queen will be laying.

When working among my colonies I keep two or three extra boards with me. When I take off a super or hive-body I set it on a board with the rim side up and another on top, so no bee can get out nor robber get in.

In carrying combs of honey or brood about the yard I use an empty hive-body with boards on the bottom and top. As an escape-board it has one fault. It cuts off ventilation, almost causing the bees above to smother in hot weather; and after they have all gone below, the honey gets too cool to extract well. This fault can be remedied in a great measure by boring several two-inch auger-holes distributed about over the board, and tacking wire cloth over them. When the board is in use for other purposes than an escape-board these two-inch holes should be plugged up from the under side to keep the bees from plastering them over with propolis. If they do get clogged with propolis they can be cleaned by pouring boiling water through them.

I think you can always buy these boards cheaper than you can make them yourself unless you are entirely out of a job, and they will be much neater than those you make. However, if you do want to make them, get some plain 3/8-inch ceiling—any width will do, but better 6-inch for ten-frame size, and some 3/8 x 7/8-inch strips. The strips may be ripped out of the ceiling. Cut the ceiling in a miter-box, the outside length of the hive. Make a rim out of the 3/8 stuff the size of the hive, and nail your ceiling on this rim, letting the tongue project on one side and the groove on the other, so they can both be ripped off. Make them in a form so they will be square.

Scottsboro, Ala.

THE EXPERIENCE OF A LIFETIME TESTING NEW SCHEMES

BY G. C. GREINER

If it were possible that one issue of GLEANINGS could be more interesting and valuable than another, the Nov. 15th number takes the lead. Several subjects are spoken of that deserve special notice.

Under the heading "A Word to Would-be Inventors," in that issue, the editor gives some valuable hints to beginners and those contemplating beekeeping which, if they will heed them, will certainly keep them on the right track. The whole paragraph under that heading so completely covers my experience of nearly a lifetime of beekeeping that I can heartily endorse every word of it. I am not a scientist; but being naturally inclined to take a great interest in all mechanical devices I have, during the last fifteen or twenty years, either actually tried or thoroughly investigated all the inventions that were brought out in the various bee-magazines during this period—especially those whose originators claimed to be perfect swarm-controllers.

To judge from appearance, together with my actual experience, I invariably found all these new inventions altogether too complicated, too difficult to manufacture, and, consequently, too expensive for the every-day beekeeper who tries to make the two ends meet. To manipulate some of those complications according to the directions of their inventors would require a well-trained engineer or machinist.

The less experienced beekeeper or beginner who has not yet decided what kind of hive to adopt for future use can unhesitatingly take it for granted that the simplest, the plainest, and the cheapest hive is the most profitable for the beekeeper whose object it is to produce honey at a fair living

rate. Even a portico is a useless attachment, and in many instances cumbersome.

At the National beekeepers' convention in Buffalo, many years ago, Mr. Doolittle said in his address when discussing the various hives, "Is it the hive? No, it is the man." A more striking truth was never uttered.

Nearly forty years ago we started the manufacture of a double hive, claimed by some so-called inventors to be the only practical hive with which to make a fortune keeping bees. The brood-chamber consisted of two hive bodies—one inside of the other, with a ⅜-inch air-space between the two. It also had ventilators through both bodies to connect the brood-chamber with the outside world, and a portico for good looks. All in all, it was a tasty-looking hive when finished with two coats of paint. Great as were our expectations of this hive it did not winter well nor insure any special advantages over plainer-made hives in spite of its great expense. We soon learned that a cheaper hive would give us better results all round if properly managed. Mr. Doolittle's Buffalo truth dawned upon us, even at that early date.

On page 899, same issue, Mr. Ritland gives a description of his motor cycle transformed into a power saw for hive-making, which interested me very much. As a makeshift an arrangement of this kind may give tolerably good service. I have studied the problem of using the power of an automobile in a similar way, but always came to the conclusion that a two or three horsepower gasoline-engine could be arranged to give better satisfaction. The cycle as well as the auto is a more or less cumbersome affair in a hive-making establishment. It requires room for lumber, room for the finished stock, and some elbow room to make our work convenient. But the main trouble with the average beekeeper would be the lumber question. Unless we are very favorably located it is almost impossible to secure lumber of desirable quality, such as our bee-supply establishments furnish us with our orders.

During last season's campaign I had occasion to order a number of hive-bodies and super outsides to make up a shortage. The work was all finished, except painting, when the foreman of a neighboring planing-mill called at my shop. I took special pains to call his attention to the quality of lumber used in my order; and I could see by his looks, although he did not say very much, that he greatly admired it.

But there is another point that would-be hive-makers should take into consideration. Many things we beekeepers need in the line of our outfit require high speed and special machinery to manufacture. It would hardly pay to spend our time trying to make our own supplies when we have not the facilities to do it properly. We had better occupy our time in some other direction, and order our needed supplies from the regular supply-manufacturers. In this way we get things better and cheaper in the end. In case we should desire goods of special construction, not listed in the catalogs, an order with correct description and measurements will bring them to our doors.

Another interesting feature of the Nov. 15th number is the views on the winter-case problem by Mr. Ames, pages 889—892, and Mr. Holtermann on the three following pages. I do not wish to cross bats with either of the two gentlemen; but the experience of many years of beekeeping compels me to differ with them on several points. Having made the production of extracted honey my main business for years, I know from almost daily observations that for convenience of management a combined winter and summer case, or even bottom, as described and illustrated by Mr. Ames, is out of the question. We could overcome its inconveniences better when producing comb honey than we could when producing the other; but for convenient, unobstructed, and systematic work in the beeyard, hives must be placed on separate stands in straight rows, about two feet between the hives, and from six to ten feet, according to the space at our command, between the rows.

The objection of some beekeepers, that the uniform appearance of a beeyard frequently causes loss of queens, is more imaginary than real. It may confuse the human eye, but not the animal instinct. A queen is no more liable to miss her home than a dog to lose the trail of his master. Nature's instinct will guide them where human skill and ingenuity will fail.

The confusion Mr. Ames speaks of is a new disclosure to me. It is something I have never experienced. If the cases are properly made, if bees are in winter position, if tools and everything to work with are on hand, packing in the fall and unpacking in the spring goes like clockwork. Not a mishitch of any kind, nor confusion, need be encountered.

Judging from the illustration, Mr. Ames' cases may be a little more artistic in appearance than mine—a point I admire; but for efficient service they are no better. Mine, made of dressed matched lumber, covered with rubber roofing, are as nearly air and water tight as mechanical workmanship can

make them. The metal binding strips Mr. Ames uses are all right, neat, and tasty. I use wooden half-round strips the whole length of the roofs, which also fill the bill.

May I ask Mr. Holtermann what becomes of the excess of moisture in hermetically sealed hives, for which he feels so anxious to furnish an exit through porous packing above the bees? I never have any trouble from moldy combs, neither do my bees suffer, so far as I know, from this moisture. It seems to be natural instinct of bees to seal their winter quarters as nearly airtight as bee-glue can make them. If this were detrimental to the welfare of bees nature would dictate otherwise. To be sure, we do not always follow nature's law in every respect, nor the animal instinct indiscriminately; but the nearer we comply with either, the less liable we are to make mistakes. If it serves our purpose any better, if we can gain any advantages by partly or entirely ignoring nature's rules, it would be shortsightedness not to do so.

Since I have wintered my bees for many years with sealed covers, it proves that upward ventilation is not necessary or desirable. With about six inches of chaff packing above the cover, the much-dreaded formation of frost or ice under it is next to impossible. Can it not be possible that bees need this moisture for their existence during winter? On the other hand, if Mr. Holtermann has always wintered his bees with upward ventilation through porous packing, and has thereby secured some benefits, it simply proves that neither method can pass as a cast-iron rule. Bees will winter, ventilation or no ventilation, and they may succumb with either. There must be other factors that decide the matter.

A word about the lumber. I cannot agree with Mr. Holtermann that half-inch lumber is better than one-inch. A winter case built of half-inch stuff is not nearly as strong as when the thicker material is used. Thin lumber does not hold nails or screws as well as that twice its thickness. We have to pay the same for one-half as for one-inch lumber, so there is no gain financially by using the thinner kind. To let the sun's heat penetrate more readily is of very little account. The object of a winter protection is not so much for the atmospheric heat to be absorbed as for the inside animal heat to be retained. Which of the two kinds will do this more effectively?

La Salle, N. Y.

A BRIEF HISTORY OF MY BEEKEEPING LIFE

BY G. M. DOOLITTLE

When I was about ten years old father bought a colony of bees, much to my delight. This colony increased till at the end of four years we had some fifteen or twenty colonies, all in box hives made of rough lumber as it came from the sawmill, each having a capacity of about 2250 cubic inches, being generally a foot square and 16 to 18 inches high. When I was 14 a second swarm began to issue as father was about to leave home, and I was told if I would save it I could have it as my own. As is the custom with most after-swarms it alighted near the top of a tall apple-tree; but, not to be beaten, I climbed to the "dizzy height" and secured it in a cracker-box, as all the hives we had made were occupied by earlier prime swarms. I watched this colony work with far more interest than I did any of the other colonies in the apiary. The box and contents were left under the tree the swarm alighted on, which was distant from the house and the apiary some twelve or fifteen rods. As fall drew on I often "hefted" the box on cool mornings, finding that a gain in weight, quite perceptible, was made as the buckwheat bloom progressed, till, after a little, I had quite reasonable hopes that they would have sufficient stores for winter. A little later, as frosty nights came on, I would go mornings and slightly rap on the box to hear the bees give me a "good morning" salute by their answering buzz. One Monday morning I gave the usual salutation; but, instead of the salute, I got a hollow vacant sound; and on lifting the box I found it empty, with the inside near the bottom smoked and charred in the killing of my pets, which I later found was done in a piece of woods a third of a mile away.

That ended my first experience as a beekeeper, as in "taking up" an old colony or two a little later on father found that the much-dreaded disease now called American foul brood had gotten a foothold in our yard; and it progressed so rapidly that the fall of the next year found us without a living colony, father taking the precaution to "brimstone" all that were living before robber bees had a chance to carry off the diseased honey. This honey, such as did not have brood mixed with it, was strained, scalded, and used, and the rest of the combs were rendered into wax.

I was still so much interested in bees,

however, that, whenever I ran across any thing in the *Rural New-Yorker* (the only paper father took in those days), about them I read it with more interest than I did the "story page."

The season of 1868 was an extra season for bees—so much so that colonies filled their hives, clustered out, and built combs under the benches the hives stood on, some colonies storing from five to twenty pounds there. This made bee-talk very common in this locality, and caused my old love for the bees to burn brightly again, so that the spring of 1869 found me with two colonies of my own as the starting-point of my real beekeeping.

Wishing to know all the minutiæ of this interesting pursuit I procured all of the bee-books of that day, and subscribed for the bee-papers. And to these books and papers I have always credited very much of the success, whatever it may have been, that has come to me in all of the years since the season of 1868.

As my ambition led me toward the practical side of beekeeping, "Quinby's Mysteries of Beekeeping Explained" captivated me beyond all of the others; and after all these years the turning to the index of that old book brings to mind pretty much all that the hands, now moldering in the dust, wrote nearly three-fourths of a century ago.

To tell the truth, beginning with 1870, beekeeping for the next thirty years was little less than "one round of endless pleasure." I dreamed of bees nights, and thought of them during my waking hours to an almost absorbing extent; and to-day I am still a student, believing that there are many unexplored regions (which I should like to explore would circumstances permit), and much room for still deeper thought, even on the practical part of this pursuit.

Besides the books and papers, Elisha Gallup, a writer on practical beekeeping during the seventies and early eighties, helped me very much through his private letters. I still have a stack of these some three or four inches high. His great patience with me and my questions has been the "mainspring" which has "moved me out" in answering the questions regarding beekeeping sent in to me. Many and many have been the nights during the past forty years in which I have been up long after I ought to have been in bed, answering questions as best I could in order that I might pay the debt I owe E. Gallup; for he would never take one cent further than postage for all the help he gave me. He, too, has passed to "his long home."

In 1870 I wrote my first article for publication, sending it to the *Apiculturist and Home Circle*, published in Mexico, Mo. This article was written over three times before I dared let it go, as I feared that it would never be published. But the editor saw fit to publish the matter, and since then I have been "scribbling away," honestly trying to help some one a little, in order that, in a small way, I might compensate for the great amount of knowledge I have gained from the writings of others.

The two colonies bought in 1869 had increased so that I started the spring of 1877 with 67 colonies; and from an old diary of that year I find the following:

I have a chance to rent the old farm which I have been working on shares for father the past 11 years, and so I start out this year with nothing but the 67 colonies of bees to depend upon, this first day of April, 1877. It looks a little venturesome, but I hope it will come out all right.

Under date of May 27 I find this:

Apple bloom, which has given a good yield of nectar, and given the bees a good supply to last till clover bloom, has also given quite a start in the boxes that are on the best colonies.

Again, date June 13:

Have decided to work two colonies for extracted, and 65 for box honey.

August 3:

White clover began to secrete nectar June 17, and on the 20th the most of the colonies were well at work in the section boxes. Basswood opened July 14, and lasted till the 28th, which, with teasel since the 20th, yielded abundantly. Now the teasel has failed, and I can work only early in the morning and after sunset, taking off honey on account of robbers.

August 31:

Buckwheat began to yield nectar the 16th of this month and closed the 28th, which is, without doubt, the last surplus for the year 1877.

October 1:

The result of this season with the bees sums up as follows as to honey:

Box honey (white), 8761; box honey (dark), 1523; extracted, 893. Total, 11,177. The average yield from the 65 worked for box honey was 158 pounds. Average yield from the two worked for extracted honey, 446 lbs. Average from the 67 colonies of both box and extracted honey, 166¾ lbs. The best colony worked for extracted honey gave 566 lbs. Best yield per day was from July 21 to 24, being 66 lbs., or 22 lbs. per day. Three colonies worked for box honey gave 896 lbs.; the best, 309; second, 301; third, 286. Several others did nearly as well, but no record was kept.

November 29:

Honey all sold. Received for what I could spare, $2492.28. Have now concluded that I can "run alone" with the bees, so have disposed of my interest in the old farm and start out as a specialist in apiculture. Since starting in 1869 the bees have paid me a little over $6000 above all I have paid out for them.

After 1877 I increased the bees till I had about 250 colonies; but in 1880 father became helpless and I had to give so much of my time to him for the next four years, or till he died, that the number was reduced to

an average of about 100 colonies. Two years ago last July my wife, who had been of very great help to me during all these years, had a shock of paralysis, which left her helpless; and in order that I might be the main one in caring for her I now have only five colonies—just enough for a little relaxation from the many cares resting upon me.

In closing allow we to say that, while I had many more colonies from 1877 till 1900 than I had during the first-named year, yet in no one year after 1877 did the income from the bees equal the amount I secured in that year, although some years it very nearly reached it. Reason: Not till 1888 did I sell a single pound of white comb honey for less than 25 cts. a pound, and in 1874 my whole crop of comb honey brought 28½ cts., the dark being included with the white. Several years during the 80's and early '90's, ten to eleven cents was the average, and in 1899 the average, when footing up for the whole crop of comb honey, was a little less than 9 cents a pound. Furthermore, since 1900 basswood has failed to give the crop it formerly did, through failing to secrete nectar some years, and because all that was available for lumber was cut off, owing to this lumber bringing $30 to $35 per 1000 feet. Better basswood lumber could be bought in the '70's at from $8.00 to $10.00.

Borodino, N. Y.

THE COST OF RUNNING AN AUTOMOBILE

BY A. W. SMITH

Your editorial statement, page 789, Oct. 15, that it costs ten cents a mile to run an automobile for outyard work, must refer to a $2000 or $3000 truck. Allow me to give an idea of what it costs me to run my little old knockabout Ford. Last March I bought an old touring-car. With saw and ax I chopped and sawed off the rear seat with its part of the body, and put on a home-made box, just the size to hold a certain number of hives.

Well, my speedometer shows I've run this machine a little over 3000 miles to date. Do you suppose it cost me $300 or more to do it? I know it has not cost me a fourth of that amount. We do all our extracting at home, hence we have given the machine plenty of hard work. For instance, one day we drove it 90 miles, stripped hives, brushing bees from combs, and 45 of those miles the old auto carried such loads as we should not put on. Do not for a moment think it cost me $9.00 to do this. Call it a fourth that amount, giving discount for cash, and you will be nearly right.

To do that with a horse would likely cause some depreciation. Formerly, when using horses it took from two to three hours to drive over, and an hour longer to drive back if heavily loaded, and the driver had about done a day's work if it was a hot summer day. Again, one does not care to drive a sweaty horse into a yard of 125 hives, but he can run an auto right up to their front doors. If my old Ford ever was stung I never heard her complain or prance about and kick over the traces as some horses do in a similar position.

Then see the fun one has in sailing through the air at a 25-to-35-mile clip. Repeatedly I have made above twelve miles with the machine in 25 to 30 minutes, and on arrival was ready to get at my work. It is not every beekeeper's horse that can make 20 miles per hour, and keep it up night and day if necessary, even with the level roads we have here.

I would say for a beekeeper, buy a runabout; knock off the back hood or cover; put on a box to suit the taste, then put on steps or mud-guards, one or two long tool-boxes, and "go it." If the beekeeper does not know the steering-wheel from the differential, I would advise him to buy a new car and run that carefully until he does know something about an auto. If he has a friend (good and true) who understands autos, and wishes to buy a used car, he might get that friend to go with him and examine such a machine. Even then it is well to keep close enough to see the seller is not asked how much is in it for the expert.

Some might like to know the course I pursued. Through the winter months I would go through garages and sales places looking for used cars; but although there have been hundreds of thousands of machines built of the make I wanted, there seemed to be very few offered for sale, and not a single one could I find for less than $300 and up to $400. At the same time I could find a great many of the formerly high-cost cars at $200 to $250. The more I could not find the car at my price, the more I wanted one.

Finally I made up my mind it was a Ford or none. The big cars that carried 4-inch and 4½-inch tires were heavy, and it might

cost 10 or even 20 cents per mile to run them over country roads; and I had seen them stuck in mud or sand that I know my car would go through with a smile. I finally learned of a man some miles away who had several used machines for sale.

He was overjoyed to see me (look out for the glad hand when you talk with auto dealers). He showed me a couple of old cars I did not want, and then the one I bought. Said he, "In that car is the best engine I ever ran," which I think was the truth; but some other statements he made I know were lies.

"How much?" said I.

"Well, seeing you are a friend and came away over here, I will sell to you for $275."

"Well," I replied, "seeing as how I am a friend of yours, I won't pay it. What time does the first train leave for home?"

In the course of the conversation he asked me what I thought the machine was worth. I took $250 from my pocket, and, handing the cash to him, said, "If you will give me $10 and the Ford it is a trade." His wife slipped the bills into her pocket, and I knew that I would never see them again, and probably *he* would not.

"Shall I go home on the train or by road?" I asked.

"It is a shame; but as trade is dull at this time of the year, and I want money, I guess I had better take you home."

I know to a gallon how much gasoline I have used, and how much of the best oil, and can form a fairly correct idea how much wear and tear on tires has taken place. Then you speak of depreciation. According to your scale it would not take long to arrive at a point where there would be none. I believe my old car has reached it; but I hope you will understand she is a long, long way from the scrap-heap. I would not sell her to-day for $240. You say repairs will run from $50 to $100 per year. A beekeeper has no business inside a garage door unless he wants to be robbed. If he does not know how or cannot learn how to do his own repairs, he'd better buy a wheelbarrow.

Of course, one may be careless or drive recklessly, and have an expensive accident. I had one. I was driving to an outyard that I was getting in shape for winter, when I met a farmer with twenty cows. My machine hit one Holstein a glancing blow on the starboard hind quarter—result, one broken glass in wind-shield, $3.50; one broken glass in headlight, 35 cts.; one bent mud-guard, ten minutes' work; one angry farmer, and one surprised cow. I had been driving quite slowly; but had I been going 35 miles per hour *it is* quite possible the cow would have been more surprised.

See the pleasure one can get from an auto. For instance, suppose Mathilde and I wish to take a little ride of 100 miles and call on beekeeping acquaintances. 'Thilde and I get in with full expectation of going there and coming back; but if we knew it would cost ten cents per mile, or $10, would we go? No, sir; we'd put the $10 at compound interest, sit in the hammock, and coo.

I never had much experience in driving those heavy big-tired cars; but I am willing to concede it may cost 10 cts. per mile to run them. I can not see how one can run up such an expense driving a light-running auto unless he goes joy riding.

Birmingham, Mich., Nov. 7.

[Our figures as explained in the editorial referred to were for the average automobile costing about $1000, and we had reference especially to our own 1000-pound truck. We stated that the depreciation and tire expense on a Ford, at about $500, would not run over half, or perhaps five cents a mile, including every thing. We are quite prepared to believe that the expense in running a second-hand Ford bought for $240 would not be over half the latter figure, and so, apparently, we agree quite well after all.

We do not wish to be understood as proclaiming that every time the truck is run five miles it costs us 50 cents. We simply mean that, *on the average* for a car of this capacity, the expense, counting interest on the investment, depreciation, etc., is apt to be not far from 10 cts. a mile.—Ed.]

WHY I FAILED IN BEEKEEPING FOR A DOZEN YEARS

BY WALTER JACK

"I have no hard-luck story to tell, but I know that I might have succeeded much better had I studied the literature of the business," was the remark of a farmer who had an apiary. This farmer gave me a few interesting facts concerning why he fell down in the business, and I will repeat them here.

"I see no reason why every farmer cannot keep a few colonies and produce the family honey supply; but when the farmer who thinks he can make easy money by engag-

ing in beekeeping he is going to lose a great deal easier. The farmer should read the books and the periodicals, and study the catalogs devoted to the art. This is where I failed. I thought I could keep bees any old way; and when I was in doubt I would wait until I saw some fellow who, I thought, knew a little better than I did. I fiddled around for two or three years, asking of this one and that one the simplest questions about beekeeping. I could have learned in two or three days' careful reading more than I learned by feeling about in the dark.

"I looked about for equipment. I bought old hives, the covers of which were rotted and worm-eaten, and the frames ready for kindling-wood. I guess I had a lot of swarms that were ashamed of the quarters I offered them and they 'flew the coop.' I lost bees year after year from disease and dissatisfaction. My colonies wintered poorly, and it is now a wonder to me that any survived. One year I dropped from about thirty stands down to about two or three. The bees seemed to swarm whenever they pleased, and at such times as I would be in a back field pitching hay. I knew of no method of controlling swarming; and when I did hear of them, they sounded as strange as the stories in the Arabian Nights.

"A beekeeper told me that I would have to get down to business, look after my bees, buy some good equipment, and read up on the art. I finally arranged to lease my apiary to him for a year, and my cash return was ten times as much for the one year as it had been for six years before that, and I was at no loss in time. The next year I thought from the few things I had observed that I could handle the bees myself. The money of the previous year looked good, and I thought that, with the increase, and with the tenant's share, I could have a nice sum in the fall. When I took hold of the bees I had a nice account of enthusiasm to draw on, but I fell into the old rut. I had a dairy of twenty or twenty-five cows. My attention was again divided between the apiary, the farm, and the cows, and the bees got the least amount of attention.

"My bee tenant told me that, were I to make money out of my bees, I should look after them, let the scrub cow hustle for herself, and I would make more out of my bees than out of my dairy. I believe him now. I believe I should have been cash ahead had I sold the scrub herd and just devoted my time to the bees.

"Last year my son returned to the farm and made a proposition that he would look after the farm, the dairy, and all crops, and turn the poultry and the bees over to me. Well, I thought that I could help out on the farm, and again I neglected the bees for the dairy. I thought it was up to me to boss the farm; and the best end of the farm, the apiary, failed to return the anticipated amount, yet it paid, even in the face of neglect.

"I have been keeping bees for a dozen years. I see why the farmer fails to make the success he should. He divides the time on the farm with the cows, the hens, the horses, and the bees. He does not make the apiary a department of the farm. He should establish it on the same basis as the millinery or the rug department in a department store. These have to pay their way or they are eliminated. If the apiary is recognized as a department which will pay its way, and the farmer studies beekeeping, and keeps abreast of progress in the art, he can made it go.

"If scrub cows are taking time from a profit-producing apiary, cut out the scrub cow or turn her over to the hired man and look after the bees.

"Give attention to marketing the product. Here is another reason for my failure; and with neat cartons and cases for the honey the product will find its way to customers who ask for repeat orders, and bees will pay."

Ashtabula Co., O.

Bee-dreams of Golden California in Winter

BY GRACE ALLEN

I walked within our yard one winter day
When not a bee from out a hive had stirred,
When soft, across the air so chill and gray,
It seemed as though a droning song I heard.

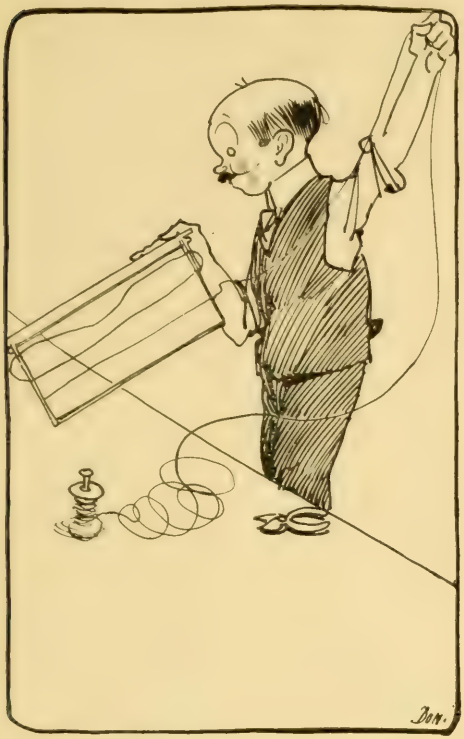
"You think we sleep, and only sleep?
Across our darkness visions sweep
And through our silence whispers creep
Of golden California!
We thrill with dreams of cloudless skies,
Where sunlit dawns and days arise;
Our winter sleep is stirred with sighs
For golden California,
Where every stroke of passing time
Is like a vibrant, ringing rhyme,
And winter's days, like summer's, chime
In golden California.
Where roses redden through the hours,
And bees that pause for naught but showers
Hang o'er the manzanita flowers
In golden California."

THE POET'S REPLY

(with apologies to our readers, as it's sorta 'tween us and the bees).

Dear bees, we're in the same position!
And now we pray you softly listen—
This year they hold an exposition
In golden California;
So please *you* store a wealth of honey,
Then we will calmly take the money
And hie us to that land so sunny—
Golden California!

Heads of Grain from Different Fields



The Backlot Buzzer

Many a novice has heard that "birds of a feather always flock together," and then gone and tried to put two queens in the same hive.

Some Answers to Questions on Starting with Bees

Hereafter no one need expect me to answer letters privately, even though a two-cent stamp is enclosed, for I am too busy with other work, and cannot take the time to answer them all. Although beekeeping is my hobby, it is only my side line, as I am a rural mail-carrier, and am on the road six hours in winter, and the spare time I must make use of for preparing spring operations.

The following are answers to questions sent me.

I would start in the spring by buying a colony of bees. I would use only standard factory-made hives the size depending on location and whether running for comb or extracted honey. The ten-frame is best for central Wisconsin, especially for extracted honey. I use nothing but a two-inch bottom, open on two sides, which I get from Gus Dittmer.

Bees can be kept on almost any town lot as long as they are compelled to rise in their flight to and from the fields by some object as brush, bush, trees, fences, etc. If handled at the right time of day and night, days clear, and during a honey-flow, they will not bother. Most lots have some out-of-the-way corner. I advise starting in a small way, and with good gentle Italian bees.

As to profit, this year was poor, but I sold $120 worth of extracted honey from 18 colonies, and kept a barrel for myself and friends.

The number of colonies that can be kept in one place depends upon the country. I had 24 last season, and increased to 33, which I am wintering in a cellar. Half a block from my place are six colonies; two blocks away there are 25; half a mile north are 50 to 55; ¾ mile southwest, 35 or 40; 1½ miles south, 30, besides a lot of farmers who keep one and two colonies apiece. Last season I was the only one around Fall Creek who had any amount of honey to sell. CARL BAUMBACH, JR.

Fall Creek, Wis., Jan. 7.

Finds Smoke Introduction Successful

I note a tendency to throw cold water on Mr. Miller's "direct-smoke introduction of queens" in bee publications lately. I consider it one of the best helps in bee manipulation of recent date. After the basswood flow I went through the beeyards caging the best queens, introducing them to the ones with poorer queens; and, when fixing them for winter, I was surprised to find so many young queens in colonies from which the good queens had been removed, and so many of the older queens accepted satisfactorily.

In carefully looking over the reports, there is usually some cause of failure evident among them, as, for example, trying to run the queen in when the robbers had grown a little bothersome while trying to find the poor queen. Or perhaps some little detail of the plan was overlooked.

In a late number of the *American Bee Journal* Miss Wilson, of Marengo, Ill., says they let the hives remain queenless one day before smoking in the new queen.

The beekeeper should have the good queen caged and all ready to smoke in as soon as the poor queen is caught out of the hive. Of course he should remove the poor queen as carefully as possible to avoid disturbance. The real point is to get the new queen into the hive so there will not be a bee but still thinks she is their old queen. Keeping a colony queenless one to three days gives the bees a chance to raise another, and, consequently, makes it harder to introduce a new queen.

Colo, Iowa. D. E. LHOMMEDIEU.

False Face instead of a Bee-veil

The first time I had any occasion to handle bees was when the old gray mare turned over one of the bee-gums, and we had to set it up again. I told my father to wait and I would get my false face. The mask was made of an old black hat with red bound around the eye holes—the whole combination just the thing to "sick" the bees after me.

I slipped up to the overthrown hive, and all at once they came at me like hot shot. They got under the false face in a moment, and then the fun began. As it was tied on with new strings it was hard to get off; but I finally tore it off just the same.

This quieted my bee fever for several years; but after a time we got some more, and since we all liked honey so well they were robbed to death. The following season I began reading, and going at the business in a different manner. I secured some good bee literature, and read up on the subject. I can now handle bees in a more businesslike manner; but I do not use my old false face. I handle them without veil or gloves. I have twenty-four colonies all in good condition.

Last fall I had a case of foul brood. Since I discovered it so late I could not save them. I just burned them—frames, combs, and all.

Hatcher, W. Va. I. C. QUESENBURG.

Where the Power Truck Saves Time

I keep 600 colonies in six out-apiaries, and run for comb and extracted honey. Last season I bought a one-cylinder ten-horse-power motor truck, 1500 lbs. capacity. I find it strong enough, with sufficient speed for all purposes.

My apiary is arranged with a road through the center. I enter the apiary with the truck and supplies, stop near one end, attend to the rows near the truck, move up a few rows, and so on. When done with one apiary we load on every thing that goes, and are off to the next.

It takes the place of one double team and spring wagon; also one single horse and rig. It saves about one man in time, besides making the work much easier and more pleasant. It is especially valuable for moving bees and taking off comb honey after the flow has stopped in the fall. Two men can go to an apiary after the flow has stopped, take the lids off, smoke the bees down, take the supers off, and stand them on end behind the hives, then go over them, smoke the bees out, brush them off, load them on, and take them away without having any spoiled by the bees—something impossible to do with a team.

Standish, Cal. H. H. HARTMAN.

Beemen, Wise and Otherwise

Out in California there is a beekeeper who has kept bees (as well as moths) for over thirty years in the same yard. Some of his hives have the bottoms nailed on tight, while in not a few of them I found the frames nailed fast in the hive. Among the conglomeration I counted eight different kinds and sizes of brood-frames and five sizes of hive bodies.

Several barrels of slumgum had been thrown on the ground and in boxes, I suppose to help the moths over a poor honey season. One pile which had been undisturbed for six years contained some sixty or seventy supers full of moth webs.

In Hot Springs, Ark., a beeman had on one hive three supers, one reading "Bottled in Bond," another "Heinze's Pickles," while the one on the top announced a dye for whiskers. The bees seemed to be quite happy notwithstanding.

Here's another beeman I know—J. Ross Miller, of Montrose, Col. A worker? One morning when I was his hired hand I woke up to find the lamps lit and breakfast on at about five o'clock, my usual time for getting up. My boss had beaten me ten miles. He had hitched the team, driven that distance to an outyard, and had brought back a load of supers so we could all keep busy scraping and grading.

Mr. Miller is certainly one of the best graders I ever saw, while as an inspector he beats them all. I helped him pile up and burn several hives of his own bees. One had three full supers of nice-looking honey. He simply burned bees, hives, frames, supers, and combs down to white ashes. But that stamped out the foul brood. He has five outyards, and takes his assistants out in an automobile.

One of the best-known beekeepers in this country once spoke of me as "the wandering beeman." Wandering is right. Beeman is wrong. But I claim to know more about bee locations than a wild goose.

Hot Springs, Ark. L. W. BENSON.

Shipping Bees in a Refrigerator Car

The experiment of shipping bees in a refrigerator car was made by F. Grabbe, Libertyville, Lake Co., Illinois. One hundred colonies were put into a car that had been iced twelve hours before loading. The car left Libertyville about noon, August 15, and was run direct to Chicago, thence to Burlington, Iowa. There the car was reiced, and continued on its journey to St. Peters, Missouri, where it arrived August 19 at 4:00 A. M. The bees were in excellent condition, and were loaded on wagons and hauled four miles north, near the Mississippi River. The temperature was about 95 in the shade while the bees were in transit. He shipped the bees for the Spanish-needle honey crop in September, and got about sixty pounds of extracted honey per colony.

The freight charge on the car from Libertyville to St. Peters was $70. The two icings cost $6.50, and the hauling to the river cost $10, or a total of $86.50. The distance covered was about 500 miles.

Mr. Grabbe has had wide experience in conducting perambulating apiaries. He was connected with an enterprise in which a steamboat and several barges were used in transporting bees from place to place on the Mississippi, culling of willow and other bloom being the object. The expense, however, in maintaining day and night crews on the steamer ate up the profits. All moves were made at night, and on this account day and night watches had to be maintained.

Chicago, Ill. J. L. GRAFF.

Was the Leaf the Signal for the After-swarm?

I hived a very large swarm at 11 A. M. They went in nicely, and, to all appearances, were well satisfied. I was observing them at 4 P. M. when a bee alighted on the hive with a wad of leaf in its mouth. All at once the whole swarm was thrown into consternation, and they began to come out, and absconded. I am as positive of the matter as I could be of any thing of so minute proportions. Has any one else ever observed any thing similar? Is it possible that this was a signal for absconding?

Rising Star, Tex., Aug. 14. J. W. BOASE.

[There are so many cases of swarms leaving the hive after a few hours that it seems to us more like a coincidence that the bee with the piece of leaf should have alighted at the precise moment when the swarm was preparing to abscond; that is, in our opinion, the bee with the leaf merely happened to alight at the same time, and this occurrence probably had nothing to do with the bees leaving.—ED.]

Make Your Own Rubber Bands

On page 952, December 1, E. J. Ladd suggests the use of rubber bands for transferring. I just called up a large rubber store, and find that rubber bands cost $1.75 a pound, while a pound contains about 40 bands of the size necessary.

Get wise and make your own rubber bands. If you haven't an auto, buy old inner tubes at from 6 to 10 cts. per pound, which you can cut up into wide or narrow bands as you choose. Get tubes large or small, according to the size of the bands you need. These will make stronger bands than any thing you can buy new at a rubber store.

Chili, N. Y. L. F. WAHL.

Flour Made from Sweet Potato as a Pollen Substitute

After experimenting with different kinds of imported meals and flour, I find the bees do not take to any kind readily. The next products I tried were flours which I made from the green banana, sweet potato, and cassava.

Each flour was put in separate trays and placed in the apiary, and a small piece of comb containing honey was put in each tray to attract the bees.

The flour made from the sweet potato gave the best results; and if I could have pulverized it as fine as wheat flour, the bees would have taken it more readily. F. A. HOOPER.

Four Paths, Jamaica.

A. I. Root **OUR HOMES** Editor

In the sweat of thy face shalt thou eat bread.—GEN. 3:19.

THE GREAT ARMY OF THE UNEMPLOYED.

The Home paper below was dictated before coming to Florida last fall. Before using it, Ernest wrote me as below; but as it is already about the usual length I plan to take the matter of "the worthy unemployed" up in our next issue.

Dear Father:—When you wrote this, conditions were quite different from what they are now. Possibly you saw in the Cleveland papers that there were 61,000 men out of employment in Cleveland alone, a large majority of whom appear to be worthy men. I asked two or three prominent people in Cleveland if this could be possibly true. They said that it was absolutely a fact. In your write-up here you speak as though only the dissatisfied or incompetent were out of work. I thought possibly you would like to modify this before it is published.

A good friend at Palatka, Fla., has written me two very long letters in regard to this matter. I answered briefly by saying that here in my Medina home, and down in my Florida home as well, there is a constant and unfilled demand for competent laborers, especially good mechanics. Of course there are more or less tramps claiming they cannot get a job. One such came to me just a few days ago. He was fairly well dressed, a good strong fellow, and he wanted something to eat. I told him I could not give him any thing to eat, but I would give him work in the lumber-yard. He snapped me up quick by saying, "How much do you pay?" I told him we would pay him what he was worth. Again he asked, "How much do you pay?" I explained to him that I could not make any bargain in regard to the pay until I saw how capable he was, and how much he was worth. I told him the foreman of the lumber-yard would be fair, and pay him what he earned compared with the other help. He went on grumbling and cursing.

Now, this is a fair type of the unemployed that have come to my notice. There are a few who seem to be honest and willing, but who are too stupid to do things right. Well, in my answer to the brother I have mentioned, I told him he was crazy to insist that merchants should sell all their goods at *cost*, and that the manufacturer should pay his help all he earns, without any margin to pay for the use of capital and incidental expenses. In his reply he takes up a subject I had not in mind. He says Uncle Sam is selling goods and doing work for the people at large without any profit, and this is all right. I heartily commend it. I am glad to see Uncle Sam take charge, not only of the mails, but also of the banking, at least to some extent; also taking charge of good roads; and I should rejoice to see him take charge of telegraphs, telephones, and even of railways when we as a people are ready for it. This man from Palatka is soured against the government; he is soured against God, and I fear he is soured against his fellow-men. His vision is obscured, as it seems to me, so that he does not see the good in this world of ours. He mentions a neighbor of his, a poor man with a family, who came to him with tears in his eyes, saying his folks were suffering, and yet he had traveled day after day hunting for a job. Well, now, although I do not know the circumstances I cannot help feeling sure that this man is either incompetent or else he will not do faithful and honest work when he gets it. He and the writer of the long letter have got into a fashion of thinking that Uncle Sam should relieve them from *responsibility*, hunt up work for them, and feed and clothe them, etc. Right here let me state that the philanthropic societies in our cities all over our land are fast finding out that there is no quicker way of spoiling a man, woman, or child than by doing things *for* them that they ought to do *themselves*. In the administering of help, whether it is money, food, or clothing, great care and good judgment are needed or you will do more harm than good. This poor man with a family, who sat down and actually shed tears because he could not find a job, could go to work and make garden *every day in the year* in that genial clime. Just now, October 3, he could plant potatoes, and get, say, $2.00 a bushel for them, as I did last winter, or something near that price. He could do this as well as to do nothing. Do you say he has no ground? Well, he certainly can *find* ground near his home that he can work on shares; and just as soon as the people in that vicinity see him doing a man's work on a piece of ground, he will have a job with good pay, more or less.

My friend writes me this man has offered to work for fifty cents a day, and adds that nobody would give him any work, even at that price. Of course, I cannot say what the conditions are around Palatka, Fla.; but so far as I know, farmers and market-gardeners are complaining everywhere that the wages now demanded by competent men are more than they can afford to pay. Of course, there may be exceptional conditions on account of the war, and perhaps there

are times when factories are obliged to shut down, where, for the time being, there is a surplus of help; but the good energetic men or women who are ready to take hold of any kind of work never remain idle very long. What I have said about the high price of men's work will apply equally well to women. There is a continual complaint that the average help in the home costs so much nowadays that the good wife cannot afford it; and one of the worst troubles is, that the incompetent demand just as much as the expert help. Just one more suggestion:

The man or woman who goes to work with a sour face and her mind full of a feeling of the injustices that the working people have to bear, is not, as a rule, profitable help. It is impossible that it should be. But the cheerful or happy person who has pleasant feelings toward employer and all the rest of the world, including happy and pleasant feelings toward his Maker, is the one who makes a success in life, and is wanted and welcomed everywhere.

A few weeks ago a bright young man of foreign birth came here and wanted work. I spoke to our business manager, and he said our season was so nearly over we could not take on any more help—in fact, we should have to drop quite a few very soon. But the stranger looked so cheerful and good-natured, that I told him I could give him work for one day. I told him to cut down some trees that were dead and dying, and cut them up for firewood. I thought it would keep him busy all day. When he found out exactly what I wanted he went to work with such vigor and good nature that he had the job all done before noon. Then I found him some other work in the neighborhood, and he pleased every one of the neighbors. In a very few days he was wanted several times at once. One man especially who was laying stone flagging said he wanted the same fellow he had before; but the man was doing important work elsewhere, and could not very well be spared. When told of this he ejaculated, "Why, I *must* have that fellow. He knows just what to do without telling, and does it. He is worth two common men."

I presume the above incident could be duplicated in every community in the United States. If it is true, as my good friend has stated, that almost *half the people* in the United States are out of a job, it is a sad comment on poor imperfect humanity. But I feel sure it is *not* true. God forbid!

I fear my good friend *forgets* that even our government gets hold of some chaps every little while who use their positions and authority to load up for their own personal use all they can get hold of from the government.

Here is something that has been going the rounds of the papers, and it seems that nobody can tell who originated it. It is a grand sermon, right along the line about which we have been talking—a sermon composed of only a single sentence. Read it, and see if I am not right.

If a man can preach a better sermon, or write a better book, or make a better mouse-trap than his neighbor, though he live in the woods, the world will make a beaten path to his door.

After the above was put in type our good friend from Palatka (H. H. Kollister) sent us a marked copy of *The Appeal to Reason.* In years past *The Appeal to Reason* has not "appealed" very favorably to *me;* but here is something in this issue that does appeal to my sense of right and wrong.

Help us to write into the Constitution of the United States: "War shall not be declared except by direct vote of all the men and women in the United States."

It occurs to me that socialism and Christianity can entirely agree and unite on the above sentiment, even if we cannot see things alike in other respects. May God hasten the day when war shall be declared in no nation unless the men and women vote for it. I say, may God *hasten* the day; for when that day comes that the *men* and *women* shall vote on the matter, *war will be no more.*

Our good friend, at the end of one of his long letters, has this vehement winding-up:

The Devil rules the earth, and he'll starve me to death unless I serve him. But while I must do that now (at least to some extent), I warn him that I will bombard his forts with tongue and pen until not an atom of his profit system remains, and God's children can live that life which Jesus taught them to. Brother Root, will you help? God's kingdom come. H. H. KOLLISTER.

THE A. I. ROOT CO.'S EXHIBIT AT SAN DIEGO; MOVING BEES SOUTH BY RAIL, ETC.

The following, from Howard R. Calvert, explains itself, and I am sure will be read with interest:

Dear Grandpa and Grandma:—I am not quite as far south as you are, but I imagine it is almost as warm here as it is in Bradentown.

Jesse Warren and I are getting along finely with the exhibit. There are certainly great possibilities out here in the West for our business. For instance, Jesse wanted some honey for his throat (he has some bronchial trouble), and we couldn't find any nice white honey *anywhere* in San Diego. At one or two stores they had a little granulated amber honey.

The climate out here is fine for beekeeping. Flowers and orange-blossoms are blooming all the year.

There are four fellows here in the Y. M. C. A. who are aviators. Two of them are flying for the

government, and two are in the aviation school here. I see them flying almost every day.

There are many poor people out here, thinking there would be work in connection with the exposition, while there is none. There are thousands of men out of work, waiting for the exposition to begin, with Christmas near, and nothing to eat or drink. Many of them came from San Francisco, where they could not get work either.

I enjoyed my last trip down to Virginia on the box car, even more than my first trip. We had an oil-stove in the car, and cooked our meals. It was pretty cold nights, but we had plenty of bedding and newspapers under our mattress, and so we didn't suffer with the cold. When we got the bees to the new location I made a camp and built a "shack," and we had a fine time for a week while we were getting the bees arranged. I also put up a fence across one side of the apiary to keep the hogs out. I love to live outdoors that way, because I feel healthier, and always have a big appetite.

San Diego, Cal., Dec. 21. HOWARD R. CALVERT.

HIGH-PRESSURE GARDENING

POTATO-GROWING IN FLORIDA, ETC.

Last April I told you about my nice Red Triumph potatoes, and gave you some pictures. Well, on this New Year's day, 1915, it would be my delight to take the readers of GLEANINGS through our Florida garden. We have had the largest amount of rain down here ever recorded in November and December; and had I not learned by experience we could not have gotten rid of the wetness. Last April I told you how we buried the palmetto and underbrush, even when it was over our heads, and how we threw our whole garden up into narrow beds with deep walks between the beds. As our ground has a gentle slope toward the canal it was an easy matter to have all the water get away speedily down to the canal. In our book on potato culture I said we wanted, even in Ohio, both *under* drains and *surface* drains; and down here it is most emphatically true. When three or four inches of rain comes down in one day or night, the tile drains are too slow. In regard to the width of these beds our finest potatoes are where a ten-foot bed takes just three rows of potatoes—one in the middle and one three feet away (or a little less) on each side. Now, we don't want deep furrows *between* the rows of potatoes. It will work like wagon tracks in the highway, and the surface of the bed needs to be crowning, exactly like a nice roadbed or more so. It wants to be so the water will go off into the paths as quickly as possible, instead of running down hill *between* the rows of potatoes. Terry says in the A B C of Potato Culture that at one stage of the growing potatoes he had often wished he had a balloon to pull the cultivator so as to avoid the tramping of the horses' feet in the mellow soil. In that same book, in describing potato-growing on Jersey Island, he author says these people have the rich ground worked up so mellow a man can push his hand straight down to the elbow.

Well, Wesley and I have our dark sandy loam worked up in just about that way; and now comes my "discovery" of a way to grow potatoes, or to *cultivate* them at least, without setting a foot on the soft mellow soil, especially when it is pretty well soaked with water. With my light sharp hoe I can work up the ground beautifully without setting a foot on the soft mellow soil, and I can break the crust and let in the air and sunshine when it is so wet it would be very bad policy to tramp between the rows. "Lots of work," do you say? Well, it is; but it is work that I enjoy more than I can tell you, and it is work that a man 75 or over can do when he isn't "much good" for any thing else; and, besides, I grow nicer potatoes than any one else around here has ever seen, and they go off quickly at a bigger price when displayed in our Bradentown groceries. Fertilizers? These extra-fine potatoes grow where we had a poultry yard several years. It is a piece of ground that has always been "'most *too* damp and springy" for a garden; but with the tile drains and deep paths it just *suits* Triumph potatoes. Strawberries, corn, beans, etc., grow nicely in the damp mucky part of our garden. Sweet potatoes grow too much to vines; but on a dry sandy spot of poorer ground they give not only many more tubers but of much better quality.

UNRULY COWS, GARDENS, ETC.

Until recently cows have been permitted to "hold high carnival" on our streets nights; but since we have begun to call ourselves a "city," and have a daily paper, our marshal has begun putting the cows in the "pound," or at least some of them that had become "experts" in hooking gates open, etc., and it has made quite a little jangle. With this preface I submit a clipping from our Bradentown *Evening Journal:*

Editor Journal:—A good friend a few weeks ago told how hard it was to be fined and worried just because his cow happened to get through the fence, etc. Please let me "narrate" a little.

Last winter I was testing some choice sweet corn; and after a good deal of "nursing" and protecting,

the corn was almost ready to pick; but in the night a poor starved specimen of a horse was in our garden in the morning and had skillfully picked every ear (or bitten off a part), that was any good in the whole patch. Although he looked so helpless and inoffensive, he could use his heels with quite a little skill, as Mr. Rood can tell, for he called on pretty nearly all our neighbors.

Well, as you know, I am greatly given to hunting up "God's gifts," especially those adapted to Florida. I sent recently to California for seeds of the "winter muskmelon," a delicious melon that will stand as much cold as cabbages, at least the woman who advertises the seed says so; and if a woman said it, it must be true.

Well, we prepared the ground with great care, digging it up deep, and giving it plenty of manure and fertilizer, and the melons were up and growing fine—at least they were yesterday. But this morning I found a cow had gotten in and waded the whole length of the bed, and then turned around and waded back again. We had fixed the soil so deep and mellow, she had a hard job of it.

Do you say we should have a good fence around our garden treasures (some of our trees cost several dollars)? But we can't well have a fence between us and our good neighbors. The women folks can't gossip real handy with any sort of fence in the way or a gate either. Bless you, no.

A. I. Root.

P. S.—Mrs. Root says I must explain that our neighbor has a good fence and gate also; but his next neighbor has a lot of boys; and, as you all know, boys will "sometimes" leave the bars down.

A. I. R.

POULTRY DEPARTMENT

POULTRY IN SOUTHERN FLORIDA.

Since early childhood there has always been a fascination to me about a hen and chickens, and also about a sitting hen. Who told her just how to go about hatching eggs? and how does it come that sitting hens for ages past have always followed the same program—a program that has puzzled and baffled incubator-makers, and is puzzling them still?

When we had been here about a week a hen wanted to sit; but as we had been getting only two or three eggs a day it took quite a spell to gather up 15 eggs. Down here I never use less than 15; and to our big Rhode Island Reds I give twenty or more. Just a word about the Rhode Island Reds.

I told you last winter we had two of these big hens to raise (or "mother") chickens. They are now over two years old; but when they are not wanting to sit they are always laying. When 70 hens gave only two or three eggs a day, these few eggs were quite sure to be yellow eggs, more or less. While the Leghorns and Buttercups were taking their long moult, these two were laying, say, about three eggs in four days, or an egg every day. Right here I am going to give you

A SUBSTITUTE FOR A TRAP NEST.

Trap nests are a bother, and take much time. Just pick out a hen you can tell by sight from the rest, and then see if you can not find some peculiarity about the eggs she lays. A hen of another breed from the rest, that lays a slightly different egg, can be easily "trap nested." Note down the day *she* lays, and you have it. Well, I reasoned if these yellow eggs bring *50 cts. a dozen,* and the white ones, when the whole yard are laying (say in April) bring only *twenty cents,* why not keep more "reds" even if they do eat more, especially as a large part of this "more" is green stuff that costs here little or nothing? Now let's get back to my sitting hen.

When she had twelve eggs I let her "start in," so as to have some new young chicks for my Christmas present—a present direct from the hands of a loving Father who taught the sitting hen her cute skill, and who moves *all* the machinery of this great universe. But I had only 12 eggs, and I wanted 15. I concluded just once more I would put in the other three next day, even if it *is* a bad plan.

HATCHING EGGS BY FLORIDA SUNSHINE.

I have long felt that we should, sooner or later, be enabled to do this, and now I will tell you how far I have succeeded in doing it.

The day before Christmas, every egg hatched (except the infertiles taken out the fifth day); and on Christmas, the chicks being lively, and wanting to get out in the warm sunshine, the hen came off, leaving two yellow eggs and one white one. I tried several times to push them under her when she brooded the chicks; but she seemed to choose a different place every time, and cared nothing for the three eggs. As I didn't want to fuss to keep a fire going for three eggs I let them go, placing them so the sun shone on them, until she settled down for the night. As none showed a pipped shell in the morning I again placed them on the bare ground in the sunshine. Well, in the afternoon I was delighted to see an egg pipped, and toward night the chick inside had got clear around so the shell came off in halves just as she settled down again for night. In the morning a great downy Rhode Island Red chick was running about, almost as lively as the rest. The next day the second yellow egg went

through the same program, and in the night the white egg hatched; but the chick was lost by my carelessness. Any way, I have two as fine chicks as any in the brood that came out of the shell by sun heat,* and right in bright sunshine. Now, how does this tally with the directions for all incubators, to avoid opening the incubator door when chicks are hatching?

Just one word more: The father of these red chicks is a full-blood Buttercup, or very nearly so; and already, at a week old, their wing feathers are out, embellished with the *beautiful* Buttercup spots and lacings. No gaudily painted Christmas cards can equal mine, for it was the finger of the loving Father who painted them *expressly* for my poor self.

I pretty nearly know by experience that some of my good friends will take me to task for "jumbling up Leghorns, Buttercups, and Rhode Island Reds;" but, my dear sirs, if I get eggs, and you don't, between Thanksgiving and Christmas, am I not ahead? The 303 eggs in one year came from a crossbred hen; and you *know* "handsome is as handsome does."

SITTING HENS—MORE ABOUT THEM.

In our issue for April 15, 1913, I described friend Stoddard's arrangement permitting the hen to stay right where she commenced to sit, and yet be free from annoyance from other fowls. As the arrangement necessitates expensive yards and nests, I have devised a plan that seems to answer about as well, and perhaps quite so. First, have all your nests in movable boxes, and boxes not all just alike. When a hen is found on the nest at night, go after dark and very quietly lift and carry box and all to some secluded place. A room or building for all your sitting hens is a very good thing. This room should have feed, water, etc., convenient for the hens; and my experience has been they will go back to their own box and eggs, after going off for feed and water. If they seem wild, be careful about scaring them off the nest until they get used to their new surroundings. Stoddard puts strong emphasis on the importance of letting the sitting hen run outdoors, fly and scratch, etc., and I think he is right. After a day or two I open the door of the sitting-room, and they always come back. During very warm days some hens will go off twice or more times in a day; and I have known some to stay from the eggs, when the day was very hot, for a couple of hours, and yet they made excellent hatches. One hen, in fact, was off when the eggs were hatching; but the hatch came off all right. When you carry the nest, hen and all, away, of course you fix a similar nest in its place for the other hens to occupy next day. No matter how many nests I provide, our hens seem to prefer particular nests, and one hen will stand and wait "her turn." The matter of a preference for the nest they were accustomed to was suggested when I tried to give a sitting hen a better box than her old rickety one. Although I fixed up the new box nicely, and put in all the eggs, she would get off and go back to the old familiar box, and I had to carry it clear off where she could not find it.

Hens usually prefer a nest up off the ground or floor. A couple of staples, such as are used for barbed-wire fence, driven in the edge of the box and hooked on two nails in the wall, will hold the nest secure, and yet it is easily lifted off the nails. To give the nest seclusion, and also to prevent fowls roosting on the edge of the nest, a thin wide board is fastened to the box for a roof, with so sharp a slant no chicken can stand on it. Now close *one* of the gable ends and it will please the "biddies" to a dot. A sitting hen, when safe from intrusion and prying eyes, often pulls the straw out of the corners so as to leave a place into which the eggs sometimes fall. To fix these corners so the newly hatched chicks cannot tumble down into them and get chilled, I fill them up with sandy loam. This the hen cannot well work out, and the damp earth is a good thing for the eggs, especially during a dry time. To put this in, without disturbing the hen, I use a big tinned tablespoon fastened on the end of a lath. This same tool I use to get the eggshells out of the way and to put a young chick back in the nest when it tumbles out. If you use your naked hand you may get thrusts of her bill that will bring the blood. This spoon is also handy in putting eggs under a hen when she is "fierce." I also use it in gathering ducks' eggs every morning when they lay in a concealed nest in the weeds and bushes. This same stick and spoon is also used as a "token of authority" when the flock of ducks seem inclined to disobey "marching orders."

DOSING SICK CHICKENS, ETC.

I clip the following sensible advice from a writer in the *Ohio Farmer:*

There are so many persons who are set on drugging fowls that a bit of general advice seems to the point. The best possible way to doctor sick hens with drugs is to make a hole in the ground at some convenient place and pour your drugs in the hole, meanwhile giving the hens sunlight, air, and good food.

What vexes me particularly is the adver-

* Sun heat is ample if we had some way of storing it up to carry the eggs through the night.

tisements in so many poultry journals of a long list of medicines at "50 cts. a box," when our different experiment stations have told us repeatedly that only two or three cents' worth of real medicine is contained in these little boxes. I hope the time is close at hand when the business of "robbing sick folks" by humbug testimonials (as well as sick chickens) is near an end. Precautions to keep out vermin are, of course, all right; but see you don't pay a great price for "insect powder."

When we arrived here Wesley assured me there was no vermin of any kind on the chickens or in the houses; but to be on the safe side I ordered a gallon can of zenoleum. Along with it I sent for a 25-cent box of insect powder, supposing I would get perhaps half a teacupful. I was pleasantly surprised to get a can with a pepper-box top, holding *over a quart,* and the directions on the can tell us to sift it freely where they wallow, and dust themselves under shelter. I did this, and the whole tribe, roosters and all, did the business of getting it most effectually all through their feathers. I didn't notice any "sneezing" among the chickens; in fact, it seemed just to suit them; but I did quite a little sneezing myself by the time I had sifted it into all their nests and around the roosts.

TEMPERANCE

PROHIBITION IN THE UNITED STATES, AND THE WAY IN WHICH IT IS PROGRESSING.

When you feel like saying, or hear some one else say, prohibition isn't making progress, just submit the following, which we copy from the San Francisco *Daily News:*

FOUR-FIFTHS OF U. S. IS "DRY;" NOT A SINGLE STATE ALL "WET."

ATLANTA, GA., Dec. 10.—Four out of every five square feet of the United States is "dry" territory! More than half of the people of the nation live under prohibition!

Such were the astounding facts submitted in reports to the Woman's Christian Temperance Union in convention here. To the layman who has viewed the white-ribboners' fight without interest the statistics are astonishing, and sufficient to convince the impassive voter that nation-wide prohibition is far more imminent than imagined.

Eighty per cent of the territory of the United States is "dry." Of the 2,973,890 square miles that go to make up continental United States only, 737,828 miles are "wet." The remaining 2,236,062 are without saloons.

The last census gives the population of the United States as 91,972,266 persons. Of these, 54 per cent, or 48,118,394 reside in territory in which the sale of liquor is prohibited.

The winning of five States in recent elections gives the anti-saloon forces the majority. In September, Virginia adopted prohibition, and on Nov. 3 Arizona, Colorado, Oregon, and Washington were added to the list.

Now 14 States are totally "dry," and no States are totally "wet."

Pennsylvania, Minnesota, Montana, and Nevada, all mining and lumber sections, are the only States which have only minor prohibition areas.

In every other State the "drys" hold a territorial advantage.

In 1868 there were 3,500,000 persons residing in territory in which the sale of liquor was prohibited. In 1900 the number had increased to 18,000,000. In 1908 the number had doubled, reaching 36,000,000, and to-day it is more than 48,000,000.

The South has for many years been in the lead in the fight for prohibition. In 1907 Georgia passed a prohibition law, though not statewide. Within a year Oklahoma was admitted to the Union with a constitutional prohibition against liquor. Alabama and Mississippi soon followed.

In 1908 prohibition was voted into the constitution of North Carolina. Tennessee followed in 1909. Alabama is the only Southern State which has dropped out of the prohibition column, doing so in 1911, by repealing the prohibition law and adopting a local-option measure. In 1913 West Virginia voted out saloons.

The prohibitory law had a close call in 1911 in Maine, where it had been in effect for 55 years. It was resubmitted, and was carried by a bare majority of 758.

The prohibition forces have met with reverses. They failed to win in Florida, Texas, Arkansas, Missouri, Colorado, and Oregon within the last four years, though two of these States accepted prohibition this year.

In two States which voted on the question this year, the proposition failed to carry. They were Ohio and California. The Ohio election was close, but prohibition was overwhelmingly defeated in California, probably due to the extensive wine industry in the State.

The following are the States in which the sale of liquor is prohibited: Maine, Kansas, North Dakota, North Carolina, Georgia, Oklahoma, Mississippi, Tennessee, West Virginia, Virginia, Arizona, Washington, Oregon, Colorado.

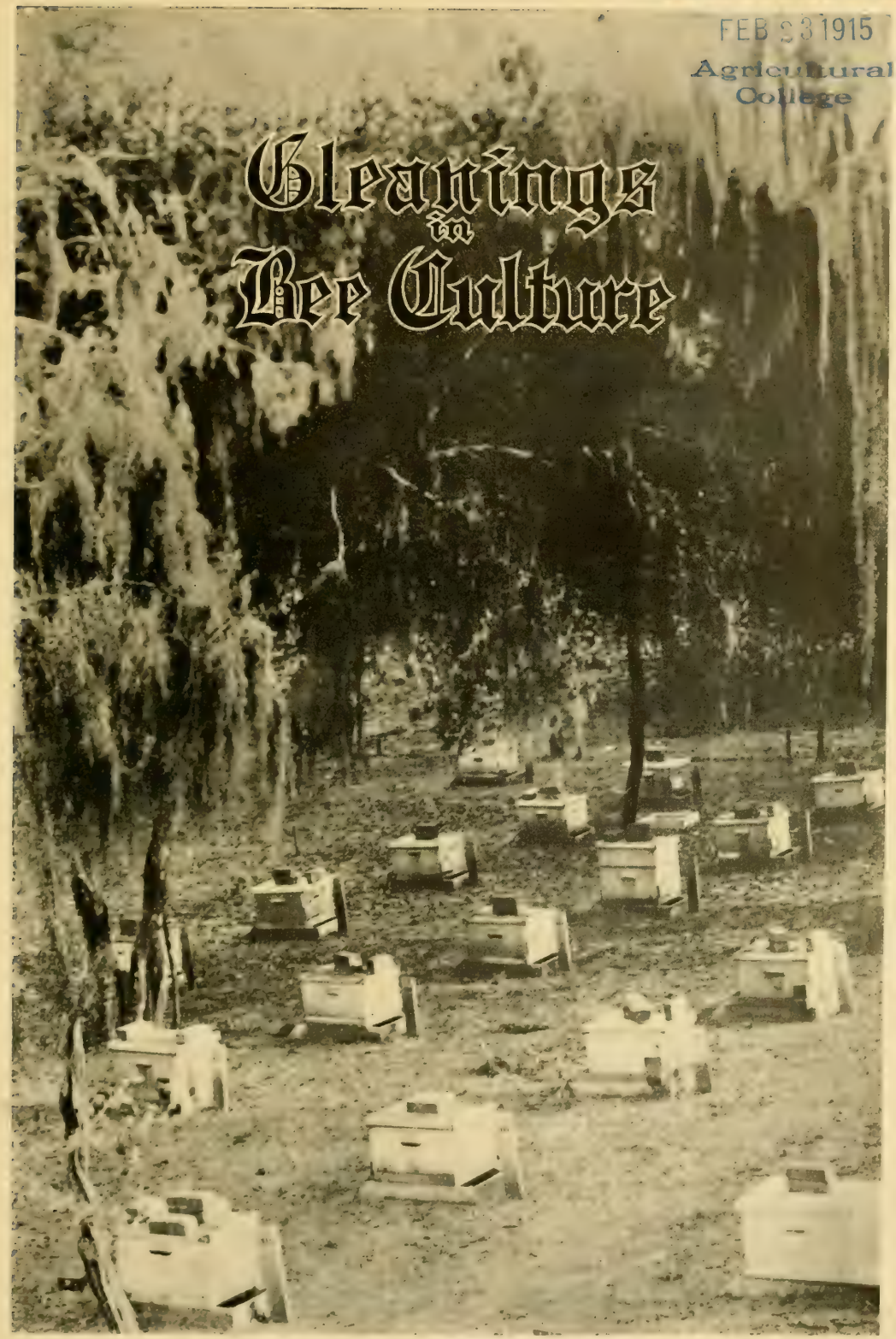
In the following States from 50 to 85 per cent of the population live in no-license territory: Alabama, Arkansas, Florida, Indiana, Idaho, Iowa, Kentucky, Louisiana, Minnesota, Nebraska, New Hampshire, South Carolina, South Dakota, Texas, Vermont.

WHY ARIZONA WENT DRY.

Among the manifold reasons which led the citizens of Arizona to cast their ballots for a dry State were the following which appeared in a column display advertisement published in the *Southwestern Stockman Farmer,* contrasting conditions in wet Arizona and dry Kansas:

"Last year," says this advertisement, "Arizona sent to the penitentiary at Florence 140 prisoners to each 100,000 population. Kansas sent but 16. Arizona's tax levy was $4.95; Kansas' but $1.20. Arizona had 1000 government tax receipts, while Kansas had but 104. If these represented saloons, Arizona had one for every 231 people, while Kansas had one for every 9050 people."—*Union Signal.*

Massachusett
FEB 23 1915
Agricultural
College



Gleanings in Bee Culture

Vol. XLIII FEBRUARY 15, 1915 No. 4

Photographic Contest

In order to keep in close touch at all times with what is being done by both the amateur and professional bee men and women in lines of beauty, as well as utility, we take pleasure in announcing another photographic contest, believing that the photographs will tell an eloquent story of a busy season of work among the bees.

We believe that no prize we could offer to the beekeeper would be so highly valued as a queen bee. We, therefore, offer a number of queens of our own stock, carefully selected for years for those qualities which are so valuable to the honey-producer, as well as queens from stock of other well-known breeders.

The territory covered in this contest is domestic, including Canada. The following rules will govern:

FIRST: The contest will begin February 15th and end July 1st, 1915. All photographs must be in our hands at the last-named date.

SECOND: Competition is limited to beekeepers or some member of the family. Entries may be made for as many different classes as may be desired, but a photograph entered for one class cannot be entered for another.

THIRD: Each photograph must be marked on the back with the name and address of the sender, with the class for which it is entered; a short description of about one hundred words accompanying it and stating the conditions under which it was taken.

FOURTH: In judging the photographs the general appearance, neatness, convenience of the apiary, or exhibit, will be taken into consideration. Photos may be sent unmounted. We rather prefer them this way, and in a smooth or glossy finish if possible. We much prefer dark photographs. Of course, they must not be too dark.

FIFTH: All photographs and correspondence regarding the same should be addressed to Advertising Department, The A. I. Root Company, Medina, Ohio.

The Following are the Classes in which Entries May be Made:

Class A: Photo showing the most artistic arrangement, all things considered, of ten or less colonies of bees.

Class B: Photo bringing out possibility of keeping some bees even where stock or people must pass close by.

Class C: Most artistic and practical arrangement of any apiary of ten to one hundred colonies.

Class D: Best view of an apiary of one hundred colonies or over from a practical standpoint. East of the Mississippi River, including Canada.

Class E: Best view of an apiary of one hundred colonies or over from a practical standpoint, west of the Mississippi River.

Class F: Best view of anything relating to beekeeping.

Ten Prizes Offered in EACH CLASS are as Follows:

First: Select tested queen.
Second: Tested queen.
Third: Tested queen.
Fourth: Select untested queen.
Fifth: Untested queen.
Sixth: Select untested queen.
Seventh: Untested queen.
Eighth: Untested queen.
Ninth: Untested queen.
Tenth: Untested queen.

Queens for prizes first to fifth in each are from our own apiaries. The queens offered as prizes from sixth to tenth in each class are from other well-known successful breeders.

The A. I. Root Co., Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

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EDITORIALS

Be sure to rake the entrances of outdoor colonies clear of dead bees. If the entrance clogs the colony will die.

Queen-cage Candy Made out of Invert Sugar

The ordinary queen-cage candy that has been used for so many years is a mixture of powdered cane sugar and honey, mixed into a stiff dough; but on account of the danger of carrying bee disease we have thought that we might use invert sugar instead, since boiling to prevent infection spoils it for bee feed as before explained. We have been making up some candy made with invert sugar, and so far it looks all right. If it can be used as a substitute for honey it will eliminate all possibility of transmitting bee disease in queen-cages.

The Editor's Whirlwind Western Trip

About the time this journal is on its way, the editor will be making a trip through the great West. We will go to Denver to attend the National convention, and from that point we will move on to the great Northwest, taking in Idaho Falls and vicinity. From here we will go to Portland, San Francisco, Los Angeles, San Diego, Imperial Valley, Cal., we hear so much about; Phoenix, Arizona; San Antonio, Texas; St. Louis, Mo., and then on home, arriving at Medina about the 15th of March. It will be a whirlwind of a trip, but the object is to get data for Gleanings. We have not been through the West since 1901, and the result of that trip was to make material modifications of some instructions in our A B C and X Y Z of Bee Culture. Oftentimes a method or practice that will work in the East will not work in the West.

Honey for Baking Purposes

Before the present war began there was an artificial product that was coming in as a sharp competitor of the cheaper honey for baking purposes, namely, invert sugar. This is made by heating cane sugar with some acid—generally tartaric—to invert it. Of course, when invert sugar is cheaper than honey, it will be used by bakers very largely; but the sharp advance in the price of cane sugar or granulated sugar put invert sugar so high that bakers could not use it, and hence they have been going back to honey. As a general rule, invert sugar will be about a cent a pound higher than granulated sugar. When granulated sugar was 4 cents invert sugar would be 5 cents. Before the Great War there was very little honey of any grade that could be bought at that price, and hence many bakers were using the artificial product. The tables are turned (thanks to the war) in our favor now.

Winter Feeding and Breeding in Cellars

A good many of our subscribers have been skeptical about the possibilities of building up a weak colony in the cellar to a fair colony by spring. Some of our best beekeepers say it cannot be done. Some others believe that E. R. R. has allowed his enthusiasm to run away with his judgment. Still others aver that any and all kinds of feeding in the cellar stimulate activity; activity reacts, causing more eating, and overeating causes dysentery, and dysentery causes death. But, nevertheless, we have demonstrated that we have been able to do this kind of feeding, and cause the bees to breed and build up in the cellar. Mr. Rea, in this issue, page 150, shows how this is done. The bees in the cellar that have been fed since the 9th of January, and up to the present date, Feb. 10, have been breeding, are dry and clean, and show no traces whatsoever of dysentery. But it is important to have the candy right. Syrup or any liquid food will not answer. The candy must be hard enough and soft enough so that the food supply will come *regularly* and *continuously*. A candy that is not just right will spoil the whole thing. To be frank, we have

not been able to get it always perfect in times past. Mr. Rea (see page 150) has probably got it nearly right. If we can use a candy made with invert sugar without the employment of heat we shall feel that we have nearly solved our problem. More anon.

Our Cover Picture

We always appreciate criticisms concerning the policies of the editors of Gleanings when they are sincerely given; and we are genuinely pleased, of course, when we receive an interesting word of commendation like the following:

Dear Mr. Root:—I have followed with much interest the long series of excellent and interesting photographs on the cover pages of Gleanings, and have marveled at your ability to secure a steady and constant supply of such excellent prints. I certainly hope this type of cover on the magazine will not be discontinued.

I venture to enclose a photo herewith which might possibly be used in this connection. It is a partial view of our experimental apiary, taken during the winter months. For this reason the hives are all shown as one-story, and only about one-fifth of the yard is within the field. This view was taken from the roof of the extracting-house, but is not nearly as good a picture as I had hoped for. You have no idea how difficult it is to photograph Spanish moss —unless you have tried it.

The photo also shows my method of numbering colonies, or, rather, hive locations, for I number the stand, not the colony or the queen. The one-inch numbers are stenciled on 1 x 4 x 22-inch stakes which are painted white. I have used this scheme for three years, and find it by far the most satisfactory of any yet suggested. The stakes are placed directly back of the centers of the hive-stands, where they are very convenient to hang the smoker on.

Wilmon Newell, State Entomologist.
College Station, Tex., Nov. 26.

The Behavior of that Cluster of Bees behind Panels of Glass; the Essentials of Outdoor Wintering

In our last issue, page 97, we referred to the fact that that cluster of bees mentioned in the previous issue had become disintegrated; that the protecting shell or wall had been broken, and that the individual members of the cluster were scattered, and many of them chilled to death. We also referred to the fact that the entire cluster was chilled through, and remained chilled for several days. It seemed as if the bees were dead, but after several hours they "came to" when placed inside before the radiator. We wondered at the time whether this freezing of the four days would have a disastrous effect. After the bees were warmed up they were uneasy, and showed unmistakable signs of dysentery, and in the space of four or five days they were all dead.

This goes to show that, when the cluster is too small, or the protection is inadequate, there comes a time when the cluster loses its power to keep up its individual heat. When that time arrives the protecting wall or shell is broken. The bees become chilled through; and, even though a warm spell may follow, so that they revive, the severe chilling has a disastrous effect, apparently, resulting in dysentery and death.

We have broken into outdoor clusters in years gone by. Some seemed scattered all over the frames while other clusters in other hives were compact, and seemed to be in nice condition. But the first-mentioned bees always died in a few weeks' time. A broken cluster, then, in cold mid-winter is a very bad sign. It is evident that the bees are demoralized and the end is near.

The object-lesson from these observations is that a colony to be wintered outdoors should be strong or well housed. But even good housing (double walls and packing) will be insufficient to protect a weak colony outdoors. But weak colonies very often can be and are wintered in a good bee-cellar that is not too cold nor too warm, that has sufficient ventilation.

The Iowa State Convention; the Need is Education, says Inspector

The third annual report of State Bee Inspector Frank C. Pellett, of Iowa, for the year 1914, has been published. Besides the short sketch of work accomplished by the inspector during the year 1914, the report contains information of value to the beekeeper in the care of apiaries and the treatment of diseases. The greater part of the pamphlet is taken up by the papers read at the third annual convention of the Iowa State Beekeepers' Association at Ames, Nov. 17-19, 1914.

The inspector found that, owing to the low production of honey and to the spread of European and American foul brood, both conditions due largely to the drouths of 1913 and 1914, many of the farmer beekeepers are either discouraged and going out of the business or are giving the bees the necessary attention and realizing consequent profits. The writer concludes that these adverse conditions have reacted favorably toward a more businesslike and scientific apiculture within the state. The greatest need is education.

The same conditions which favored the spread of the diseases made it difficult for the inspectors to deal with them. With inspection during a heavy honey-flow, robbing could be started easily, and the disease spread instead of checked. This emphasizes the need in certain localities of county in-

spectors who can work when conditions are favorable. At the same time the report recommends that the code be modified to give the inspectors more latitude in their work. As it now stands, the intricacies of the law are quite beyond the powers of the inspectors.

A further recommendation points out that, with funds which could be derived from taxing bees the same as any other property, research work could be carried on by the state agricultural experiment station and the information properly disseminated for the benefit of the beekeepers.

Among the papers submitted to the state convention and published in the report was a discussion of temperature and humidity in the wintering of bees by E. F. Phillips, Ph. D., of the national Department of Agriculture. This has been published in a Government bulletin, and was reviewed on page 71, Jan. 15. Wesley Foster, of Boulder, Col., presented methods of co-operative marketing of honey. L. H. Pammel's paper on honey-plants of Iowa calls attention to the values of the willows, the maples, the dandelion, the apple, plum, and cherry trees; the berries, the clovers except red clover, motherwort, catnip, heartsease, boneset, and goldenrod. Dr. Burton N. Gates, of the Massachusetts Agricultural College, adds force to a much-proclaimed truth in his paper entitled "The Value of Bees in Horticulture." L. A. Kenoyer reports entomological investigations among wild bees. C. P. Dadant furnishes a sketch of beekeeping from the dawn of man's recollection.

How to Make "Fondant" or other Soft Candy for Mid-winter Feeding

We have referred to the desirability of avoiding the use of honey in making queen-cage candy on account of the danger of transmitting bee-disease—see page 4, Jan. 1. Elsewhere in this department will be found a statement concerning the making of candy with invert sugar, which, chemically speaking, is very nearly the same thing as honey. Others have been working on this problem of making bee-candy that will contain no possible germs of disease—notably Mr. O. F. Fuller, of Blackstone, Mass., and Dr. Burton N. Gates, of the Massachusetts Agricultural College. On page 435, July 1, 1913, we gave a brief review of an address by Mr. Fuller, on how to make bee-candy with glucose, or what has been technically called "fondant." During that time a good many inquiries have come in concerning it. As this is the time of year when possibly some bees in winter quarters may be running short of stores, it is proper to consider how they may be supplied with food when no combs of sealed stores are available. Mr. Fuller and Dr. Gates have both said that the fondant such as they have described could be and has been used for winter food. In this connection we see no reason why queen-cage candy made by mixing invert sugar and powdered sugar together could not be used in the same way, as invert sugar contains no deleterious acids, and, apparently, it can be used precisely the same as honey in the making of old-fashioned queen-cage candy known as "Good candy." This is made by mixing sugar and honey (or invert sugar), and kneading it into a stiff dough. No heat is employed whatever in the process, and in this respect, other things being equal, it would seem to be much superior to the Fuller candy using glucose and a high degree of temperature. If there is too much or too little heat there will be trouble.

However, there has been so much call for information on the use of and how to make Fuller candy, or "fondant," that we have thought best to give a brief digest of Bulletin No. 7A, by Dr. Gates, describing it.

This candy, says Dr. Gates, has numerous advantages and possibilities. It is found to be a satisfactory stimulative feed; a feed for bees in transit, and satisfactory as winter stores. Colonies have been observed to leave natural stores for the candy. Some of the advantages claimed for the candy are the ease with which it is handled or supplied; the fact that it may be made in quantities, and stored until needed; failure to incite robbing; the ability to provision colonies with known amounts or weights, and its freedom from infection. There is no waste by evaporation or spilling, as is the case with liquid feed.

The candy may be made in any degree of hardness or softness, and may be stored for years if properly handled. It may be molded in pie-plates or feeders, or boards may be nailed to the side of a frame, and the candy poured and molded within the frame, allowing this to be hung in the hive adjacent to the cluster.

The latest recipe for soft candy is as follows:

12 lbs. granulated sugar;

1½ lbs. liquid glucose, or granular mixed with water;

1¼ quarts of water (equal to 40 oz., 5 cupfuls);

¼ teaspoonful cream of tartar, added when the temperature reaches about 230 degrees F., or 110 degrees C.

Boil to 238 degrees F., or 114.4 degrees C.

The measures should be accurate. A

wooden paddle is superior to a spoon in stirring or beating the candy. A confectioner's thermometer is an advantage.

As soon as the sugar has begun to dissolve, prior to boiling, remove the paddle from the kettle, and do not stir while cooking. To do so will cause a coarse grain. Remove and cool to 125 to 130 degrees F., when the specified boiling-point has been reached. Then stir it vigorously until the mass appears in color and consistency like boiled starch or paste. At once pour into feeders and cool.

FINE-GRAINED CONTENTS FOR QUEENLESS CAGES.

Another way to cool the candy is to prepare a marble slab with bars of square iron, making a form. The candy may be poured upon the marble, and with broad putty-knives the mass may be beaten or worked upon the marble. This produces a finer grain, and usually a firmer and whiter fondant for use in queen-mailing cages or the transportation of bees.

By varying the boiling-point at which the candy is removed from the stove its hardness may be controlled. Furthermore, it should be boiled to one or two degrees higher on cloudy or gloomy days than on dry days.

STORING THE CANDY.

The fondant is best stored in a covered earthen crock which preserves the normal moisture. Over the mass should be placed a sheet of paraffin paper upon which is a moist cloth or towel. Queen-cage candy should always be kept in this way to preserve its consistency.

REMAKING THE CANDY.

If at any time the candy hardens it may be softened by the application of a few drops of water, and may be recooked by the addition of a small amount of water, and boiling as before.

Bees from the Akron Swamp Inclined to Show Dysentery

Our readers will remember that last fall we carried several yards of bees to points about thirty miles east of us, in the vicinity of that 1000-acre swamp—see pp. 570, 614, 702, 747, 791, and 920, last year's volume.

It will be recalled also that our bees gathered considerable aster honey. Mr. Halter who had them in charge mentioned the fact that colonies supplied with this food were inclined to show dysentery through the winter. There have been many other similar reports. It is not always that aster honey does this; but fearing that it might do so we moved most of the bees that had been reared in and near the Akron swamps to Virginia. There were, however, about forty colonies that we kept at home for the purpose of experiment. The greater portion of these we put in our upper bee-cellar, and a part of them are showing dysentery already, and some are as good as dead. We are thanking our stars that we moved practically all the colonies with aster stores to Virginia, where they are having almost daily flights; for be it remembered that, when we examined these bees in January, there were no traces of dysentery.

GREENHOUSE FOR CURING COLONIES AFFECTED WITH DYSENTERY

For the purpose of experiment we are placing some of these colonies that have dysentery as a result of the aster stores in a small greenhouse in the hope that we can save them.

Early last winter we had one colony showing slight signs of dysentery. This we placed upstairs in our office building, in a warm room. In front of it, to catch the flight of the bees, we placed one of our regular wire-cloth cages that we use when a colony is attacked by robbers. This is 4 feet long, 2 feet high, and 2 feet wide. Many of the bees actually did fly out into this and discharge their feces. Some of them returned, but the most of them worried themselves on the wire cloth and died. There must be a couple of pounds of dead bees lying on the floor of the cage. Examination of the hive this morning, Feb. 10, showed quite a cluster of nice bees; and although this colony has been in a warm room continuously it shows no signs of dysentery. As a cure for the malady it worked well, but as a wintering proposition it can hardly be called a success.

But possibly a cage like this may be used, or, better, a greenhouse, to let some colonies from the cellar afflicted with dysentery clean up in the absence of any warm flight days. We will give our readers a little later the benefit of our experiments.

By the way, our bees, with the exceptions noted, some 300 colonies, are wintering nicely in our cellars.

Oh, yes! another exception should be noted; and that is, that bees for exhibition purposes that have been on display in the windows of drugstores and groceries to advertise honey are practically good for nothing when brought back. These were put into the cellar, thinking we might save them; but the general disturbance and excitement of several days of exhibition got them so demoralized that they kept on with their uneasiness until they all died off. We have concluded that exhibition bees, after they have served the purpose of advertising, are practically a total loss.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



C. F. BENDER writes: "My experience is different from that of Mr. Herrod, p. 5. I have always put away my extracting-combs wet, and have had much trouble with moth larvæ."

I. E. FIELD, when I cage a queen in a mild case of European foul brood I do nothing whatever with the brood—just leave it, and in most cases the bees will clean it out when it dries up.

F. M. BALDWIN calls for experience as to introducing queens by daubing with honey, p. 67. That plan was common 50 years ago. As little has been said about it lately, I suspect it was not always successful.

JAMES D. BENSON, p. 82, when a colony swarms, kills cells, and puts "back four or five frames of brood in an eight-frame hive." In other words he replaces three or four frames with foundation. I should expect my bees to swarm again within 24 hours.

D. E. LHOMMEDIEU, p. 125, objects that Miss Wilson let the bees be queenless a day before smoking in the new queen, and says the queen should be smoked in just as soon as the old queen is caught out of the hive. But that's not according to Arthur C. Miller, friend Lhommedieu, who says the bees may be queenless any length of time.

"IT is suggested . . . . that a smoker be held" at the Denver convention, says the program. Is that suggested by some one who doesn't know that few beekeepers use tobacco, or has there been a deterioration in late years? [Some of us who do not use the weed might use a bee-smoker filled with greasy waste; then we can all "smoke."—ED.]

T. MAGUIRE, *Beekeepers' Gazette*, 120, says: "Last May we had, perhaps, the most severe frost in living memory, and, notwithstanding this, we had also one of the finest crops of fruit gathered for a long time. . . . But, again, in certain seasons a slight frost seems to kill off the blooms." In the latter case he thinks the frost is not to blame for the loss of the crop, but the persistence of cold winds which prevent the bees from flying. He is likely right in thinking that few realize the full value of bees to the fruit crop.

J. L. BYER is quite right, p. 97, that sometimes one may better his chances for wintering bees by moving further north. Not only snow, but wind, makes a big difference. I'd rather take my chances 200 miles north of Marengo in a still place than to stand the piercing prairie winds here. [We agree with you and Mr. Byer; and we also agree with you that a spot protected from high winds is much better for bees wintered outdoors than a place that is exposed. We are beginning to believe that bees in single-walled hives in a protected location are better off than in double-walled hives in a place where fierce piercing winds can strike them. Of course it is better to have both the double-packed walls and the protection from winds.—ED.]

WESLEY FOSTER, p. 98, like J. G. Brown, wants me to substitute something else for white clover in this two-for-one-ready-for-the-clover-harvest business. Not on your life, Wesley. White clover is what I was talking about—not sweet clover, alfalfa, buckwheat, nor any thing else. You say you can increase your crop of white sweet clover by early dividing. So can I—at least I think I can—right here in Illinois, without going to Colorado. I notice you specify *white* sweet clover, which, I suppose, means you want to leave out yellow sweet clover, which comes earlier. Now I wonder if you Colorado fellows realize that white clover comes still earlier than yellow sweet clover. Last year I noted the first white-clover blossom May 27, and the first white-sweet-clover blossom June 23, just 27 days later. (The harvest begins about 10 days later than the first blossom.) That, you see, gives my bees, and I suppose it does yours, 27 days more to build up for the white sweet clover, and that 27 days is enough to make all the difference between success and failure. You say the two colonies build up steadily during June, ready to store surplus July and August. Yes; but while they're building up in June, two or three weeks of the best of the white-clover flow is on, and I've known the harvest to cease July 4. In 1913 the flow continued late—I don't know just when it did stop—and it is just possible I might have gained by dividing; but 1913 was one year in fifty. Now please let's understand each other. I don't object to the Alexander plan of increase—it's good. I do object to telling the beginner that he can divide by the Alexander or any other plan and have two good strong colonies in place of one ready to commence—not to work on the fag end of, but to commence—on the clover harvest. He'll get left nine times out of ten if not ninety-nine in a hundred. I'm ready to be shown, but that's my honest conviction.

J. E. Crane

SIFTINGS

Middlebury, Vt.



I agree with J. L. Byer, p. 928, Dec. 1, in thinking a ten-pound pail the cheapest and most convenient feeder we have.

* * *

That method of ridding combs of bees for extracting, as given by Geo. Shiber, p. 988, Dec. 15, is well worth remembering, saving, as it does, all brushing, and then making new colonies of the bees carried into the extracting-room.

* * *

Mr. Doolittle tells us on page 887, Nov. 15, how a buyer says he doesn't care for the color of sections—it is the honey he is looking at. Just so. And if it is in sections a little off color, then honey that is a shade off looks better than in white sections.

* * *

"Honey-fizz" at the Connecticut fair at Hartford is another "new idea" surely. Well, when this new, non-alcoholic, refreshing, pleasing, and healthful drink takes the place of the enormous amount of beer now sold there will be something for us beekeepers to do in supplying the quality and quantity of honey required for this purpose.

* * *

On page 920, Nov. 15, Mr. Hardy tells how his beets averaged 19 per cent sugar. If we compare this with the average per cent of sugar in beets one hundred years ago we shall find it almost exactly three times as great. I fear few of us fully appreciate the wonderful improvements that plants as well as animals and even bees are capable of.

* * *

A. E. Crandall, page 843, Nov. 1, tells of the pleasure of a trip with a "bee inspector" down in the Nutmeg State. I have no doubt of the truth of his statements, but I want to call attention to the fact that it gives the inspector quite as much pleasure to take an intelligent beekeeper along with him to discuss the strange ways many people have of keeping bees and the hives they use. Some of the most enjoyable days I have spent in inspecting bees have been of this kind.

* * *

Those pictures of the new apiarian laboratory for apicultural investigations under the United States Department of Agriculture, found on page 856, Nov. 1, and the cover page of Nov. 15, are of more than usual interest, and we may all rejoice that we have such a home for this division of the entomological section of the Department of Agriculture. We may also rejoice that this line of work has been so ably and vigorously prosecuted in the last few years, and that it is likely to be of even greater value to us in the future.

* * *

Attention is called on page 833, Nov. 1, to the large amount of money offered at the Hartford fair for prizes. This comes of the Connecticut idea. A teacher once asked a small boy how the Connecticut River came to receive its name. The boy replied that it was because it connected Vermont and New Hampshire and cut through Massachusetts. Now the Connecticut State Beekeepers' Association has been in the habit for several years of connecting up with the Charter Oak Fair Association, which holds its fairs at Hartford, by putting up as much money for prizes as the fair association will, which has of late amounted to $500 per year. Then the beekeepers' association selects a judge for the bee and honey exhibit, and the fair association pays his expenses, and he cuts up the $500 into premiums and divides it among the beekeepers—Connect-I-cut—don't you see? Not a bad idea for other State beekeepers' associations to follow.

* * *

FEEDING GRANULATED HONEY IN THE SPRING.

In a footnote on page 941 it is stated, "Candy is about the only substitute for good sealed stores we can use in the dead of winter." Beg pardon; but I fail to see why honey granulated solid is not just as good. It is even softer, and I have no doubt more easily taken or liquefied by the bees. It is true that bees will sometimes reject coarse granules of honey; but it is not often the case, and may come from the weakness of the colony; but the loss from this source has never been large. I have even laid combs of honey granulated solid over a good colony and have them remove it, and so save the combs and feed the bees at the same time. Indeed, I have at the present time a lot of sections candied solid that I have laid away for spring feeding. The ease with which bees can be fed in the spring with granulated honey is surprising. You can feed at any time of day, as it doesn't excite them as does liquid feed. The experience of T. P. Clare, page 987, Dec. 15, is of value along this line.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



To-day, Jan. 28, we are in midst of the heaviest rain of the season.

* * *

Dr. Miller says, page 7, Jan. 1, "Really, one great beauty of beekeeping is that you never get to the end—always something more to learn." This reminds me of the following quotation:

> Learn as though you expect to live always;
> Live as though you expect to die tomorrow.

* * *

The remarks of the C. C. Clemons Produce Co., page 37, Jan. 1, are sound and of importance. Wesley Foster also covers about the same ground. The marking of honey in the individual amounts should be as near the exact weight as possible. Then the customer knows what he is getting and is willing to pay for the amount received. But, as Mr. Clemons says, when a section is stamped eight ounces and actually contains thirteen, it is not easy to persuade the buyer that he is getting long measure. The American people are not used to long weight, and are likely to look with suspicion on any one who is so un-American as actually to give something away. Mr. Clemons has been in the honey-market for many years. I have been in his establishment when it was known as that of Clemons & Cloon; but later the name was Clemons & Mason.

This year I marked all of my cans with a small label, which read, "Guaranteed sixty pounds net." When filling my cans I set the scale to balance at one pound in excess of the sixty pounds called for. In this way I kept well within the law, felt well satisfied with my measure, and suffered no great loss.

* * *

In commenting on the last item, page 7, Jan. 1, the editor in speaking of destroying foul-brood combs uses the word "burn." If there is any word that can be found that grinds my nerves in connection with the eradication of foul brood, it is that word *burn*. I wish for the sake of those who have had their bees destroyed by fire, simply to accomplish the same results that might have been accomplished by hot water, the word burn had never appeared in connection with the treatment of disease. A few years ago one of our county inspectors made the assertion before the state convention that he had burned a number of perfectly healthy colonies because they had been shipped into his county contrary to a county ordinance. I am hoping that I may live to see the day when we shall have a national law regulating the transportation of bees, thus eliminating all state and county ordinances. County ordinances may be all right in the hands of an inspector who can maintain his good judgment after having become an official (if he had any to start with); but with the chances involved the risk is too great. Many of our county ordinances are principally used as a fence to keep other bees out. In at least one instance of which I know, an inspector from another county inspected a shipment for Imperial Co. which he accompanied in person to that county, and they "stuck." Others have been turned back.

* * *

California beekeepers should not be misled by the discussion of the A. Swahn letter by Dr. Miller, p. 979, Dec. 15, and J. G. Brown, p. 27, Jan. 1. I consider the argument of Dr. Miller sound as affecting the greater part of our state, and I believe with him that Mr. Alexander's situation was one in a thousand. There are places in the alfalfa districts of the Imperial Valley, as well as some parts of the San Joaquin, where the harvest might be increased by an early division of colonies. But as a rule in the greater portion of the state—in fact, the entire nation, the practice would be detrimental rather than beneficial, so far as increasing the quantity of surplus honey would be concerned. I infer that Dr. Miller believes in one large force of bees to a hive rather than a slightly greater number divided into two hives, and in this I believe he is entirely right. There is no doubt the Alexander plan will work in a few localities; but in most parts of our state, as I have said, it would accomplish very little for the increase of the crop of the same season. I never figure the increase of colonies in the results of my season's crop. If they are increased by natural swarming, the loss as a rule to the parent colony will more than offset the gain from the swarm; but if by dividing, the gain of both will as a rule not equal the loss of the united colony. So my plan is to figure so many colonies spring count. I have never seen a colony so strong that I thought it would be better divided, or would produce more in two hives. Give them room according to their strength and they will do the rest.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



About ten years ago I called the attention of readers of GLEANINGS to the importance of removing as much drone comb as possible from the hives during spring inspection of the colonies, for the reason that it was expensive to leave it. I am still of the same opinion, and give the same advice. Too many beekeepers even to-day allow a great deal of the drone comb to remain in their colonies. It means the rearing of a host of useless consumers at a great expense, and aids in the decrease of our profits. Cut it out!

* * *

NEWS NOTES AND PICTURES WANTED.

I should appreciate hearing from the many beekeepers, throughout the Southwest in particular, and over the rest of the state in general, during the year. Photographs of apiaries and other things pertaining to beekeeping will be very welcome. It has been my desire to show up in picture and pen more of Texas beekeeping for a number of years; but it has been almost impossible for me to get out and visit the many beekeeping friends, and snap them and what they have and the things that they do, as I have wished. To make a beginning in this direction of "exposing" some of the big things that are in Texas, and the things that are being done here, I shall be exceedingly glad to get a large number of such pictures and news notes as will be interesting to the readers of GLEANINGS. Due credit will be given in all instances, and, if desired, pictures will be returned when so instructed.

* * *

TEXAS BEEKEEPERS, TAKE NOTICE.

The legislature of Texas will have been in session quite a while before our readers get this issue of the journal, but not so long as to have arrived at the measures providing for appropriations for the many things that legislatures are usually called upon to provide for. A request for an appropriation will have been made by the Agricultural and Mechanical College and the Experiment Station for a sum of $10,000 for the Department of Entomology, most of which amount is to be used for foul-brood-inspection purposes. The request has not yet been filed, so that I am unable to know its exact nature, other than that this amount is asked for, and that the beekeepers are expecting that the greater portion of it will be used for foul-brood work. In any event, it is important that the beekeepers show their interest in this important matter by either seeing their respective representatives in both the House and the Senate, or writing to them at the earliest opportunity if this has not already been done.

It is very necessary indeed that the members of the legislature be informed as to the needs of the beekeepers so that they may know what is wanted. There has always existed, in the minds of most of the beekeepers and others, that erroneous impression that these men do not pay any attention to such letters from their constituents. I am frank to say that I was at one time guilty of the same belief. Of later years I have been led to change my opinion, because I have associated more or less with these "fellows," and now, since I am a member of the legislature myself, and have learned to know what goes on in such a law-making body, I have found that the members not only do read these letters but consider them, and are desirous of lending a helping hand if they can only know more about the nature of the request.

Of course, I feel that I can be of much help now that I am a member of this body, and I feel that the beekeepers are depending upon me to do my share. Even at this time I have been able to give much information on the subject in question to many of the members who did not understand the matter in the least, and I have already laid plans by which I feel that the measure will be fully understood, and that there will not be any trouble about passing the appropriation measure.

If I can get the additional assurance from the beekeepers that they will inform their representatives I see no reason why we beekeepers of Texas should not be dealt with in a most favorable manner. As I have indicated in many former instances, when matters of such importance were up it is exceedingly important for the beekeepers to do their share of duty, and then, and not until then, can they expect the "other fellow" to do his. For this reason I again hope that, in case the matter has not been reached in the mean time (and I do not think it will be reached during the regular session), every beekeeper will make it a point to inform his representative why we want this money, and that we must have it to protect our industry from which we make our bread and butter.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



POLLEN AND PROPOLIS.

"Mr. Doolittle, I read in GLEANINGS something about bees requiring pollen in order that they might thrive. What is pollen?"

"Pollen is the farina or fertilizing dust from plants and trees necessary for the perfect fruiting of each separate species. This dust is finer than any miller can produce. When the season is late, or pollen is scarce in our locality, bees will take flour, meal, or finely ground oats in lieu thereof. In many localities bees are thus fed in the spring till the pollen-bearing flowers open."

"How do bees gather any thing so fine?"

"If you will examine with a lens one of the hind legs of a worker bee you will find that the stoutest joint is very square-shouldered at the hinge, and that this hinge is well over toward the side of the leg, away from the body of the bee. These shoulders form a pair of jaws, as it were, which open when the leg is bent and close when it is straightened. The upper jaw has a row of spines which strike on a plate on the lower jaw, and thus the bee can use force enough to hold and manipulate things to an extent which seems quite marvelous. In the gathering of pollen these shoulders or jaws are called "pollen-baskets" because they are used for holding the pollen as it is gathered. And the bees often heap these baskets full to overflowing with the loads they bring in from elm, hard maple, and other flowers which are abundant pollen-producers."

"And that is what the bees are carrying when they go running in the hives with 'yellow legs.' Years ago I heard it said that such loads were wax; but I always doubted it."

"Wax is not gathered, as it is not an extraneous substance which needs only to be collected for use."

"But how does the bee cause such minute particles of pollen-dust to stay in those baskets?"

"I do not know that I can answer that question; but from what I could observe by lying down close to a feeder having finely ground oats in it my conclusions were that the bee, when going out in quest of pollen, always took along a little honey in its honey-sac, unless pollen was being gathered from flowers which produced both pollen and nectar. After the bee had rolled about in the flour and taken wing, she seemed to touch her front feet to her mouth, then rub them about on her dusty body, when the dust which adhered to those feet was transferred back to the next pair of feet, when these in turn were drawn, or partially so, through between the spines and joints spoken of before, which left the now moistened pollen adhering to the pollen-baskets. And thus, by a series of extremely rapid motions, the baskets would be seen to become fuller after each dip and roll-over the bee would take in the oat flour. I have seen this manipulation of pollen nearly or quite as well when the bees were at work on the dandelion. But to get any thing like a correct view the head must be lowered so the bee will be between the eye and the sky."

"And what is the pollen used for?"

"It is taken by the nurse bees, together with honey and water, and, by a sort of individual home manufacture, formed into chyle (similar to that used by the mother pigeon in preparing the 'milk' with which she feeds her young), when it is fed to the larvæ, on which they thrive. No larvæ can be matured without pollen, or something as a substitute. Bees gather only one kind of pollen at a time. While different bees may carry in several colors at the same time, the pellets on any one bee will be all alike."

"Now a few words about propolis. Is that gathered from flowers?"

"No. So far as I know, nothing in the floral line, after opening, gives off propolis. The milkweed flowers are somewhat sticky, and from their peculiar shape often trap the bees which work on them, and hold them fast till they die; but I have never detected bees at work gathering propolis from these flowers. It comes mainly from resinous buds just before they expand, or from the buds which are forming for the next year's growth—mostly from the buds of the balm-of-gilead, in this locality, during August. In the spring they will often be seen collecting it from old hives left standing in the sun, so that it becomes again soft enough for manipulation."

"What use do the bees make of such sticky material?"

"It is mostly used for coating uneven surfaces, and filling up cracks about the inside of the hives or whatever their home may be. It is also used in hermetically sealing up any offensive matter that may be too burdensome for them to remove."

GENERAL CORRESPONDENCE

ANSWERS TO QUESTIONS ON OUTSIDE WINTERING

BY R. F. HOLTERMANN

When giving the methods of wintering outside as practiced by me, in the first place I plainly stated that, so far as the cases and fence are concerned, I learned the method from Jacob Alpaugh, and it appears to me that we should not lose sight of that.

From letters I have received, and from the cover picture in GLEANINGS, Jan. 15, it appears necessary to draw attention to the too frequent way of following (or, rather, *not* following) directions.

If the reader will look at that cover picture he will see that the result of having those covers placed against the winter cases is to bring the snow which has fallen immediately under the entrances up to the hives or cases. If there had been a heavy fall of snow the snow would even block the entrance. Now, to this latter I have no particular objection so long as the snow is removed as soon as a thaw sets in, which would not likely be the case if the beekeeper did not look after the bees during the winter. But such a situation has far worse results. I pointed out in my writings that wherever ice or snow is immediately under the entrance the effect is to chill the bees; and as they fall on the snow or ice they perish. To illustrate, vessels on the Atlantic in the dark are at times able to detect the proximity of icebergs by a fall in temperature. If the temperature in the open is 55 or 60 degrees when the bees fly, the temperature one, two, or three inches from a block of ice would be much lower. The bees flying from the entrances in the illustration might not have perished had the cases been set on blocks nine inches high, and had the snow been, as it would have been in this case, a foot from the entrance. Of course the bees may have been dead ones cleaned out.

Some ask if the small round entrances (three or four 7/8-inch holes) are sufficient. All I can say is what I have said. I have cut the wood away at times between two of the holes. Otherwise they have answered the purpose. When beekeepers undertake to enlarge materially and permanently the entrances they do so contrary to the system I use. Again, with a board slanting upward directing the flight to the entrance, the current of air into the entrance is intensified, which in windy weather would be very undesirable.

The illustration on page 61, Jan. 15, shows a full-width entrance with a full-width bridge instead of an entrance 5 inches wide by 3/8 inch deep, with three 3/8-in. holes just under the front board of the hive, as I have them. My method gives much less entrance room, and makes the hive much less liable to be robbed. In fact, there is a vast difference in this respect.

Next, some have not left an opening at the top of the case to allow the air to pass over the packing and carry away the moisture which comes from the bees through the packing. Any one reading my articles will see that I pointed out the necessity of having a 5/8-inch hole in the sides of the case and immediately under the cover.

The packing should be of such a quantity that there is an inch or two of space between the packing and the cover, allowing a free circulation of air between. If this is not done, there will be a tendency for moisture, expelled by the bees, to linger about them.

Again, many beekeepers make the cases out of 7/8-inch lumber instead of 1/2-inch or 3/8-inch. It is not a question of price or convenience. I am not going to say that bees cannot be wintered, and often well wintered, in 7/8-inch cases; but the object in the thin case is to have the heat of the sun is painted a dark color, as was recommended.
is painted a dark color, as recommended.

In carrying on experiments with living things one must be very careful to have all the conditions accurate. To compare certain details, all the other conditions must be alike. This is very difficult to obtain in animal life; and to cover these imperfections one must repeat the tests again and again, and then draw conclusions from the general average of results.

It requires a judicial frame of mind to carry on research work.

My advice is to have shade in the apiary. Fruit-trees leaf out after the cold spring has passed, and therefore, in my estimation, they make a good shade. Have the apiary in a sheltered place. One man in the state of New York recently told me that he was going to locate his apiary on top of a high hill at the north end of a lake. The location may be the ruination of his apiary so far as

profits are concerned. On top of a hill is not a good location unless well sheltered by trees.

I have also had a number of letters from beekeepers about fences.

Several ask about combs melting down in hot weather if there is a fence about the bees. We have had a temperature in the shade of 96 degrees. I have never had any combs melt down; but I have an entrance to my hives 1⅛ in. deep by the width of the hive. I do not know what I might have had with an ordinary entrance if I could imagine myself foolish enough to use one. Build your fence so you can take out every second board in the summer, and plenty of air will pass through the apiary.

Brantford, Canada.

THE EDITOR'S PLEASURE-TRIP DOWN THE INDIAN RIVER, FLORIDA

An Interview with O. O. Poppleton, the Famous Bee-king of Southeast Florida; the Long Idea Hive

BY E. R. ROOT

I was unable to finish my Florida articles last spring owing to the lateness of the season; so I decided to defer the publication of the remainder till the following winter, when the thoughts of all beedom are again turned toward Florida and the Southland generally.

Last winter, while visiting with my parents at Bradentown, I received a letter from Mr. W. A. Selser, from his home in Florida, on the east coast, where he goes every winter to recuperate. In this letter he referred to our projected cruise down the southeast coast of Florida, and he was particularly anxious that Mr. G. M. Gray and his wife (who were with me on the trip) should go along to make up the party with him and Mrs. Selser. As I had covered a portion of the east coast *northward*, Mr. Selser's general proposition, as may be surmised, was very attractive—especially so as he said we would fish and gather oysters on the way. It is not necessary to go into further details; but the result was that Mr. Selser chartered a cruiser from his neighbor, Capt. F. S. Slifer, or Dr. Slifer, a specialist of Philadelphia, who was also spending his winter in Florida. The doctor had never cruised down among the Keys, and was willing to take our party for a very moderate sum.

We started from Stuart about the 10th of March, last year, with a good supply of eatables and a cook aboard—one who knew how to do things up right. See Fig. 1. I enjoyed drinking in great drafts of seabreezes, for I had been sick with chills and fever; but Mrs. Selser said she was going to cure me of all these, and she did. She put me on a diet of fish and eggs, oysters, grapefruit, and oranges. The two last mentioned were served five or six times a

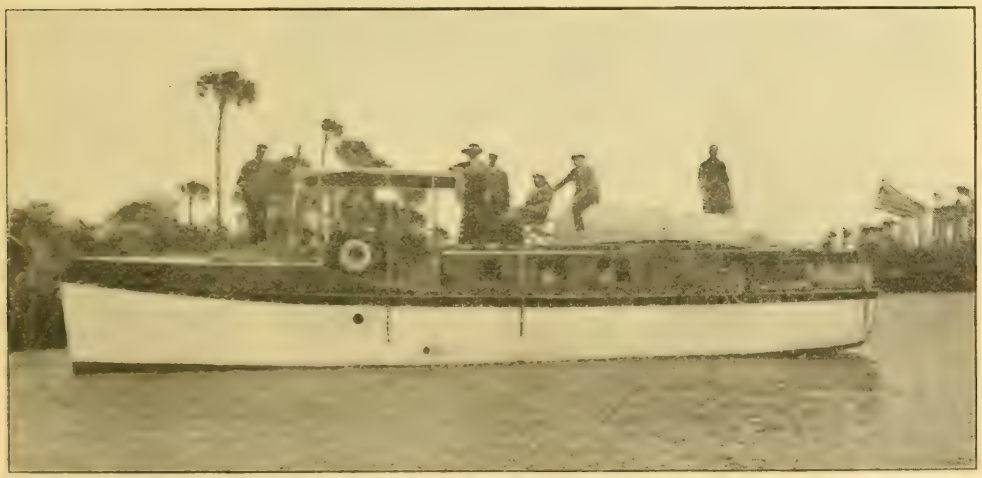


FIG. 1.—The 40-ft. gasoline cruiser in which the editor of GLEANINGS and party cruised up and down the Indian River and inland waters of the southeast coast of Florida, studying beekeeping conditions.

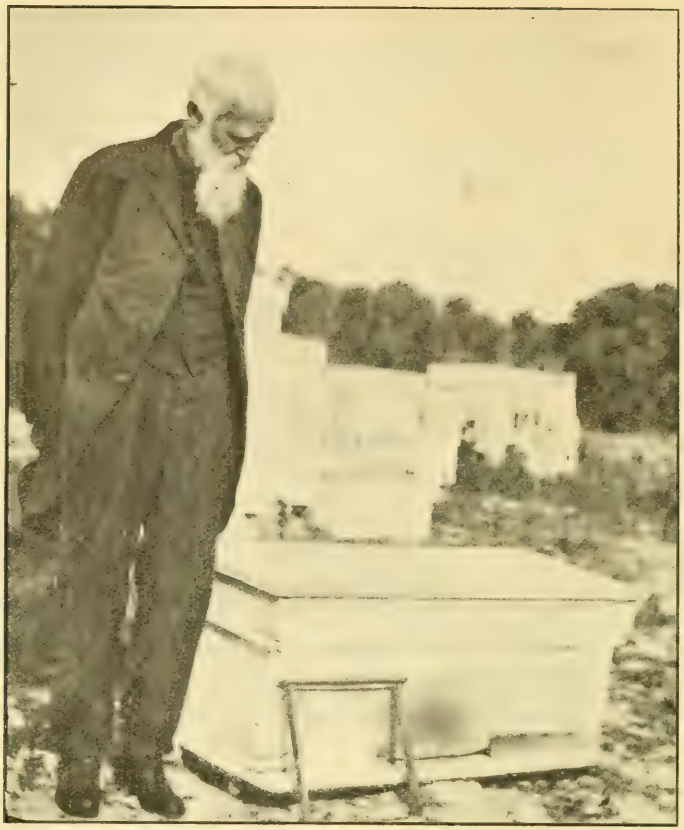


FIG. 2.—O. O. Poppleton standing beside one of his Long Idea hives in Pompano, near Miami, southeast coast of Florida.

day. I had not been long on this trip before my chills disappeared, and I began to build up. A cruiser trip and a genial company aboard will cure almost any sick man. It certainly put me on the high road to health; and I have been comparatively well ever since.

Speaking about grapefruit, I have now "acquired the habit," and a good habit it is. Instead of using the more solid foods I now use the lighter acid fruits such as apples, grapefruit, and oranges with just enough of the proteins to make a balanced ration. Thanks to Mrs. Selser, who did more for me than all the doctors I ever employed, I am beginning to know *how* to live.

Our trip comprised a cruise of some 250 or 300 miles down the Indian River and some smaller rivers. We could stop and eat and sleep anywhere at any time. All we had to do was to cast anchor in the lee of some cape or island. There were no hotel bills to pay; for we could eat and sleep on the boat or go ashore any time we pleased.

When we ran out of eatables we went ashore and bought at the groceries as cheap as any one. At the end of our trip we divided up the expense, which, outside of the cruiser, was no more than if we had been at home.

At Pompano, on the way down, we picked up Mr. O. O. Poppleton, the "Florida bee-king," whose headquarters for the last ten or twelve years have been Stuart and Miami. Mr. Poppleton has, during all these years, sailed these waters back and forth until he knows them perfectly. His knowledge of the shallow places was invaluable.

At Delray we picked up Charlie Repp, of the Repp Brothers of New Jersey. I have already referred to the interview with him. He is the famous apple-grower, and one of the great friends of the honeybee. See GLEANINGS, May 1, 1914, p. 347.

POPPLETON LONG IDEA HIVE.

It will be my purpose this time to tell something about Mr. Poppleton, one of the pioneers of beedom, who has passed the threescore-and-ten mark by one year, and who to-day bridges the days between Langstroth and Quinby and the present time. Mr. Poppleton was a successful beekeeper in Iowa away back in the early days. He was one of the very first to discover the value of packing and double-walled hives for wintering bees. He used the Long Idea hive of 24 American frames away back in the early days, and has continued to use it throughout all the years since.

Some years ago ill health compelled him to go to Florida, and he, like the rest of us, found there "the fountain of perpetual youth." Although he is now past 70 years of age, he is a man who is remarkably well preserved, and his mind is as clear and strong as it ever was. I counted it a great privilege to spend several days with this man on board our cruiser, where I could

interview him; for be it remembered that Mr. Poppleton was for a number of years the greatest migratory beekeeper in the world. While his operations in this line were not, perhaps, conducted on as large a scale as those of the Root Co. during 1914, yet he carried on the business on a large scale a long time successfully.

Occasionally we used to get little items as to what he was doing. Every now and then there would be a picture of his bees on a gasoline-launch; but beyond these and some very short items about his migratory beekeeping, the bee-world has not seen much of him. The fact that he belongs in the list of old veteran beekeepers alongside of Langstroth, Quinby, Tupper, Gallup, Wagner, Heddon, Hutchinson, Miller, and Root makes him all the more interesting. Of this number there are only two others besides Mr. Poppleton who are still alive.



FIG. 3.—O. O. Poppleton manipulating one of his Long Idea hives at Stuart, Florida.

Some forty or more years ago the merits of the Long Idea hive were extolled in the columns of the old *American Bee Journal*, and, later on, in GLEANINGS. This hive primarily consisted of a single brood-nest capable of holding 24 American frames, 12 inches square outside. It was always used as a single brood-chamber, never on the storifying or supering-up plan.

The hive that Mr. Poppleton uses, or did use up to a year ago before he sold out, has a brood-nest or hive-body 40 x 13 inches deep, by 13 wide, inside measure. This will take 24 closed-top American frames, 12x12 outside measure. While these dimensions would seem to afford a rather large bee-space for a 13-inch hive Mr. Poppleton was doubtless figuring on the accumulation of propolis and irregularities of construction; for it would have to be made at a regular planing-mill or by a carpenter, as no supply manufacturer makes it. The cover telescopes down over the hive proper, leaving room in the top for a cushion or packing material if necessary. The body is cleated at the top end and sides to make it convenient to handle. In the illustrations accompanying (Figs. 2 and 3), the general style of the hive will be seen, together with the frame, with Mr. Poppleton standing at one side.

One would think, to look at this hive, that it is about the most unwieldy, clumsy, and awkward thing that could possibly be used for migratory beekeeping. It would seem to be especially so for a man past 70. I have actually heard many persons say, even in Florida, "I do not see how such an intelligent man as O. O. Poppleton can get along with such a monstrosity." Such remarks came even from beekeepers not far distant from him. I must confess that I myself could not see any merit in it; but after having heard Mr. Poppleton explain the hive and system as he uses it I am not sure but I should like to work with it. Indeed, it may be better for migratory beekeeping than any hive of smaller dimensions

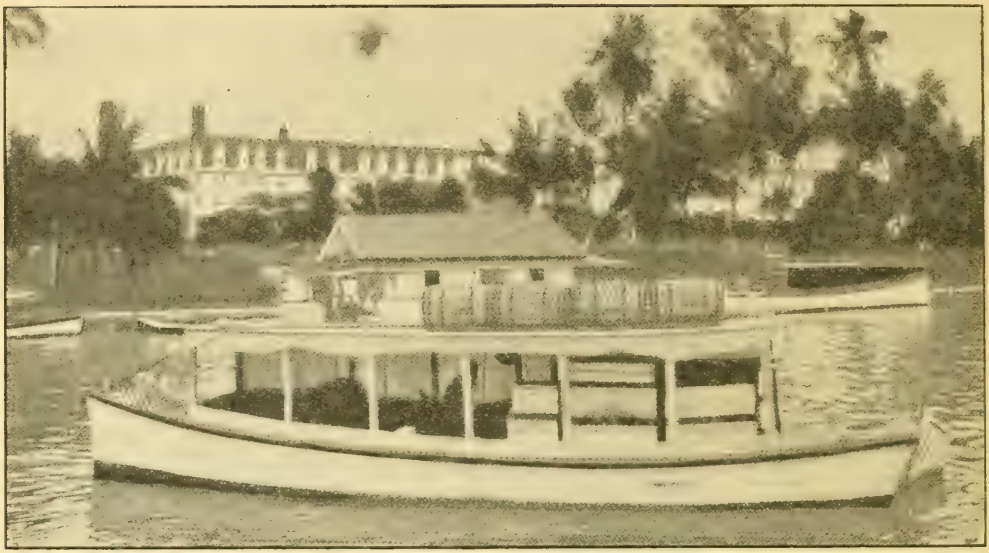


FIG. 4.—Mr. Poppleton's gasoline-launch which he used in his migratory beekeeping on the southeast coast of Florida. This launch was capable of carrying about 50 Long Idea hives at a time, besides bedding and cooking appliances. In the height of the season Mr. Poppleton ate, slept, and extracted in this launch.

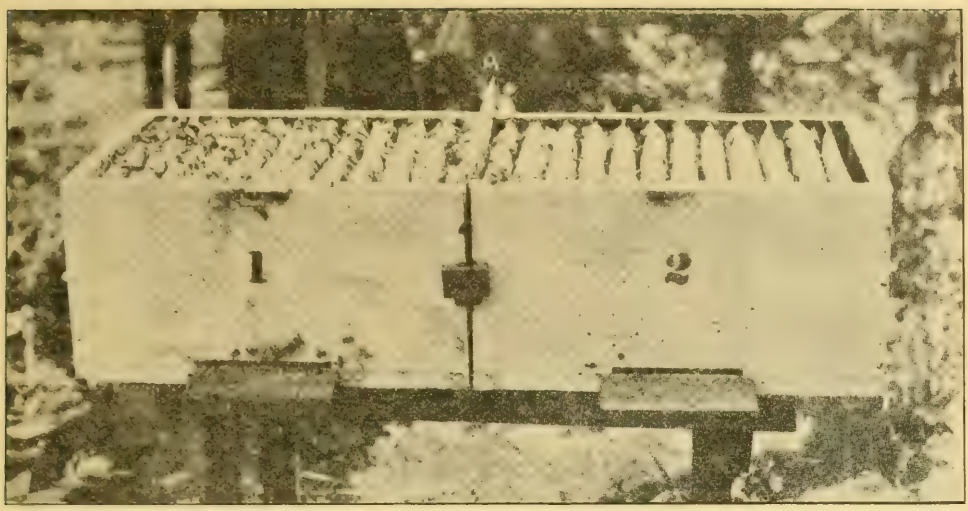
worked on the tiering-up plan. The very fact that Mr. Poppleton has used it successfully these many years, and almost all alone, would show that it is not so bad after all.

The frames have closed tops. One of these stands in front leaning against the hive—see Fig. 2. Mr. Poppleton is holding another one in the other picture, Fig. 3. The top-bar has two longitudinal slots two inches long by ⅜ wide. In ordinary practice these are kept closed by strips of wood running transversely over these holes clear across the whole top of the hive. It will be seen, then, that the bees cannot get to the top of the frames, and, of course, they cannot glue the top-bars into the rabbets. All the warm air is kept below. The cover can be removed at any time without a bee coming out. A screwdriver or knife-blade, as soon as the cover is removed, will spread the frames for the purpose of examination or for extraction. Very little bee-glue holds them together, from the fact that the gluing operations are confined wholly to the *under* side.

Now as to the awkwardness and bigness of the hive. Mr. Poppleton explained that, in order to make bees pay in Florida, the colonies must be *very populous*. As a matter of fact, this same principle in apiculture applies almost everywhere. No crop of honey can be secured unless we have powerful colonies powerful enough to send out a good field force when the honey-flow comes on. An ordinary ten-frame Langstroth hive alone will not hold such a colony. In order to give sufficient room, the hive must be tiered up, one, two, three, or four stories high.

Right here Mr. Poppleton claims a big advantage over those who tier up. Instead of giving eight or ten frames all in a bunch he adds one, two, or three as the colony can stand. His expansion of the brood-nest is gradual, while the expansion on the vertical system is "steady by jumps."

Well, then, we will suppose that he has built his colony up to 24 frames capacity, and is just ready to move his bees to where the pasture is good. It has been argued that the ten-frame hive is big enough to handle—too big, indeed, to lift with comfort. Talk about hives three times as large, toting them down to the boat, and then toting them out again on the land! it looks ridiculous. But it is not as bad as it seems. If one has to handle a big bulky weight it is much easier to have that weight in a horizontal oblong form like a trunk than to have that same form or shape standing on end. If we were to handle a trunk standing on end the handles would be placed midway up and down of what is ordinarily top and bottom. But, no; an ordinary trunk is made a good deal after the shape of the Long Idea hive, with handles in the end. Said Mr. Poppleton, "An ordinary single ten-frame hive is unwieldy for one man to handle alone; but I can handle with a helper, whom I can hire for the occasion, an oblong box two and a half times the weight easier



The Long Idea hive as used by Victor Vargas Gamallo, Professor of Beekeeping at Havana, Cuba.
1, brood-chamber; 2, super; A, queen-excluder.
Courtesy *Nueva Sistema de Colmenas de Barras Movibles.*

than one man can handle a single ten-frame hive;" and I do not know but he is right. If any one could hear Mr. Poppleton explain how he moves his big hives on to the boat, he would see the trick is not as difficult as it might seem.

On the other hand, Mr. Poppleton explains that he is an old man, past 70, when he cannot lift heavy hive bodies or supers full of heavy combs; but he can manipulate his Long Idea hives without lifting any thing heavier than a single comb or cover. He can get at any part of the brood-nest at any time anywhere, and almost instantly. He has no hive-supers nor hive-bodies full of frames to lift. When it comes time to move the bees, he hires a man one day to get hold of the other end of the hives.

There is never any wind powerful enough to blow these hives over. "They will stay right where put," said Mr. Poppleton; and then he explained further that he could not work a ten-frame Langstroth hive on his system. He insisted that he must have strong colonies—nothing less than 24 frames capacity. How, he asked, could he load three eight-frame Langstroth hives tiered up on his boat, and then unload again, without danger of their tipping over? There is no getting around it. A two or three story hive is not a desirable proposition for his system and location. But the same capacity all in one story can be moved.

I said to Mr. Poppleton, "The vertical system permits indefinite expansion; that is, an eight or ten frame hive, Langstroth dimensions, could be tiered up three or four stories high, or higher if need be." He admitted this, but explained that, with his system of management, he could keep his colonies down to 24 frames capacity.

I suggested that, on the tiering-up principle, we could shut our queens down to the brood-nest with the perforated zinc, and all combs above would be clear of brood for extracting. He explained that he could do the same thing with the division-board excluders, but said that he had never found it necessary to use any thing of that sort.

When it comes to extracting he extracts from one side or end of the hive, and in a few days later from the other end. In this way he takes only ripened honey that has been all capped over. While the bees are filling one end that has been extracted they are ripening and capping at the other end. When that is accomplished it is extracted, and so on the process is repeated.

I suggested that the queen would have brood in many of the frames from which he extracts. He admitted this, but said he was careful in handling such combs. When the queen has an unlimited range, the colony is not likely to swarm if the combs are kept extracted close enough.

In the busy season Mr. Poppleton runs back and forth with his boat to the different yards. In this way he carries his extracting-outfit. In fact, he said that in the height of the season he sometimes eats and sleeps on the boat—see Fig. 4.

Mr. Poppleton has also used his migratory beekeeping in the matter of securing in-

crease. If one yard is earning nothing and doing nothing he moves it to another place where there is something doing. He said that there is quite a difference in various portions of Florida within twenty or even only ten miles of each other. At Pompano, for example, the bees would breed every month in the year. This was one of his favorite breeding-places. Here he built his colonies up and then moved to other locations on the Keys, and further down where honey was coming in.

I told our friend that the Long Idea hive was being revived in certain quarters. Two or three people in Massachusetts, and our old friend J. E. Hand, have been using a sixteen-frame Long Idea hive. "These people are making a mistake," said Mr. Poppleton. "They are not going far *enough*. The sixteen-frame hive is too big to be handled by one man, and not large enough to be handled by two. Sixteen frames will not hold our best colonies. Mr. Hand's scheme of converting this hive into a double-walled eight-frame hive for winter," said our friend, "is very old," and he would refer us to the back volumes of the bee-journals.

I then asked him whether it would be practicable to make a twenty-four frame hive on Langstroth dimensions. If he were going to start again, rather than take Langstroth frames he would adopt a Jumbo just two inches deeper, and make a hive to hold twenty-five such frames.

In the matter of breeding, Mr. Poppleton says there is no particular advantage in the horizontal Long Idea hive over the vertical system except in the matter of convenience to the operator or owner. For old people, women, or any other who lack sufficient strength to lift upper stories, the single-brood-chamber principle seems to have some advantage. If it were not for the fact that it is more expensive, and that it is not adapted to the production of comb honey, it might, perhaps, receive more favorable consideration than it does. If one were to start with a hundred of these big hives to accommodate a hundred colonies he might be scared out of the business before beginning. These big hives would cost considerably more than the same capacity on the vertical principle. The tiering-up hive permits the use of narrow and short pieces of lumber in a way that would not be feasible with the Poppleton hive. Large boards of clear or sound-knot stock are expensive as compared with small pieces that have been cut out of cheap lumber, cutting around the knots.

Mr. Poppleton has carried as many as 80 Long Idea hives at a single time in his boat shown in Fig. 4, taking along in addition extracting-outfits, bedding, etc. But that was when he towed the boat with another one. When he put in an engine he could carry fifty at a time with the necessary extracting-outfits and bedding. While he sometimes extracted inside of the boat it was his practice to have a small building at each yard. This structure is of cheap lumber, and of sufficient size to answer as a workshop, extracting-building, and for storage purposes also.

To be continued

THE ORIGIN OF THE HONEYBEE

BY N. N. ALLING

One often reads that the honeybee was made to fertilize the flowers or simply to furnish man with honey and wax. People could not think that it is living for its own sake like any thing else, and had adapted itself from remote ages to the work it is now performing, and thereby secured itself an existence. Plants at the same time have adapted themselves to attract the bee by shaping their flowers and secreting sweet juices so the bee would carry pollen from one blossom to another.

People in general think the way the world is now is as it always has been, but this is not so. In the coal period there was not a single flower on any plant, although there were plenty of insects related to bees. It is natural to think that the bees' ancestors in the coal period lived more like ants, eating what honey-dew they could find on plants and trees. The bee had no use for pollen-baskets, honey-sac, or wax-pocket. It might not have lived in colonies, as the temperature was high in those days, and there was no need for a winter cluster.

While the workers are undeveloped females now, they might all have been fully developed then. Perhaps the sting was an ovipositor, and the mothers placed the eggs in any crack or hole to hatch by natural heat, leaving the larvæ to take care of themselves as do caterpillars now.

Only slowly, very slowly, did the plants take other shapes through the next formations or periods while the bees kept pace with the plants for their mutual benefit.

The bees' antlike brothers were prevented through circumstances from developing in the same direction, but went in another, just as it often happens that human brothers, brought up in the same home, but scattered all over the world, adapt themselves to surroundings and possibilities and reach different social levels. We can always be sure that what we call a family of plants or animals is from the same ancient form, and that, again, from some still more ancient source where so many families originated before the Carbonaceous epoch.

These truths are not generally known. But the facts of geologic history will become more and more realized in spite of nursery tales from the childhood of mankind in which every thing is imagined for the benefit of man. A Swedish philosopher, Swedenborg, who flourished 150 years ago, said that bees were made to give us honey and wax; and was not wax necessary for candles? He did not dream of kerosene, gas, or electricity.

Perth Amboy, N. Y.

WASHINGTONIANS DISCUSS PROTECTION

BY J. B. RAMAGE

"The Relationship Existing between the Beekeeper and the Fruit-grower" was the subject of a paper read by Dr. A. H. Henry, of North Yakima, at the recent convention of the Washington State Beekeepers' Association. While all of the addresses were of a high order this one was especially so, bringing out a phase of the related sciences which is only lately coming to be fully appreciated. He was listed to address the convention a year ago, but had a severe illness at the time the association met.

The addresses, papers, and talks dealt with the range of subjects usually handled in these conventions; but especial attention was given to methods of creating good will through exhibits and of realizing upon it in sales.

The members also discussed somewhat the idea of forming a beekeepers' protective association. There are altogether too many losing bees and honey through petty thievery. I believe we can get such an association started through a little push on the part of the members. I believe that to post notices at outyards offering a reward of $25 or $50 for information leading to the arrest and conviction of thieves will have a very salutary effect.

The association framed a foul-brood law which the members hope to see passed at the next session of the legislature.

The convention, the twenty-first to be held by the association, was called Jan. 6, 7, 1915, at North Yakima. The following officers were elected for the ensuing year:

President, J. B. Ramage, North Yakima; vice-president, C. W. Higgins, Wapato; treasurer, Gus Sipp, East Selah, North Yakima; secretary, S. King Cloder, Mabton.

NEW JERSEY ASSOCIATION ASKS FURTHER RESEARCH

BY C. D. CHENEY

Increased appropriations by the New Jersey legislature for investigation in bee diseases will be asked by the New Jersey Beekeepers' Association. At the convention held at New Brunswick Jan. 13, 14, action was taken to place before the legislators the need for funds in order that the State Department of Agriculture may carry on further researches into the causes of the various diseases, the conditions affecting their spread, and the methods of combating them.

The matter of holding additional summer meetings in different parts of the state was discussed. While only one summer meeting has been held annually in past years, it was suggested that four be held in the summer of 1915; but it was finally decided that two be called, if it is possible to make satisfactory arrangements. These meetings will be educational in character, and one at least will be held in a box-hive apiary where some practical demonstrations can be made.

W. W. Case, of Frenchtown, read a very interesting and amusing paper entitled "Reminiscences." The audience was so well pleased with this production that Mr. Case was requested by resolution to send it to one of the bee-magazines for publication.

All 1914 officers were re-elected—C. H. Root, of Redbank, president; and E. G. Carr, of New Egypt, secretary-treasurer. W. Garabrant, of Ralston, was elected representative to the annual meeting of the State Board of Agriculture, and W. W.

Case, of Frenchtown, alternate. Dr. E. F. Phillips, of Washington, D. C., an honorary member of the New Jersey association, was authorized to represent the organization at the convention of the National association in Denver.

Owing to a heavy rain and wind storm during the thirty-six hours before the opening day of the convention, the meeting was not so well attended as previous meetings have been.

Hoboken, N. J.

CANDY FOR WINTER FEEDING

Some Experiments in our Machine-shop Cellar

BY GEORGE H. REA

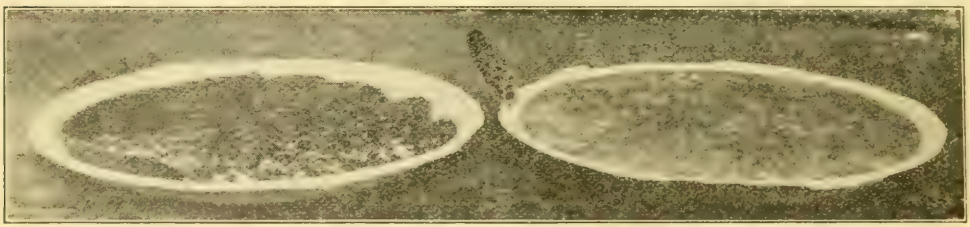
Readers of GLEANINGS will remember that about a year ago we made elaborate experiments with hard candy for feeding. (See GLEANINGS for January 1, 1914.) It was found that candy made simply of sugar and water would granulate too much. The bees would eat away the softer portions and waste the hard crystals, which would be found in considerable quantities on the bottom-board. This trouble was overcome by making the candy with about one pint of honey to twenty-five pounds of sugar. We are again testing this out in our machine-shop cellar.

On January 9 ten small colonies, of an average strength of about four frames of bees and honey, were taken for the experiment. Over the clusters, right on top of the frames, we placed two cakes of candy molded in paper pie-plates. One cake was hard candy made simply of sugar and water, while the other contained about 10 per cent honey.

As we expected, that containing the honey was rapidly consumed, while the hard candy remained untouched for several days. The percentage of honey was found to be too high, and the honey became too soft after a few days in the hive. To-day, February 3, it is just about all consumed, while that made of sugar and water is barely touched. Where the bees are working on the latter the hard granules are thrown to the bottom-board and wasted.

On January 26 two other lots of candy were made—one with one pound of honey to twenty-five pounds of sugar, or 4 per cent honey, and the other with half a pound of honey to twenty-five pounds of sugar, or 2 per cent honey. The bees seem to be consuming both of these about equally, except that there appear to be some hard portions in the latter which the bees seem to be eating around, and may later discard.

A point to be taken into consideration is that our machine-shop cellar is extremely dry, and it is possible that in a moist cellar the harder candy might become sufficiently soft so that all parts of it could be consumed by the bees.



Two cakes of candy were placed over the same colony. One of them (the one at the left, above) contained 10 per cent honey. The other was merely boiled-down sugar or syrup. As can be expected, the candy containing the honey was taken readily by the bees while the other, up to the time the picture was taken, had not been touched. It is interesting to note the small piece of comb which the bees built on the edge of one of the plates as a result of the stimulation.

There is no drip whatever from the candy containing 4 per cent honey, and for a dry cellar this is undoubtedly the right proportion. We do not believe it would become too soft, even in a damp cellar.

Another interesting fact is that the colonies fed with this candy are rearing brood quite freely. Observation yesterday showed brood in all stages, and the queen laying as though it were summer time. The results of this will be reported later.

In one of the colonies the brood-nest was split through the center by spreading the combs, leaving a space about two inches

wide in which the bees clustered, hanging in festoons upon the cakes of candy placed over the opening. The first examination was made on the third day after the candy was given them. A good start was found to be made on the honey candy, while that containing no honey was untouched. To our astonishment a piece of comb was found built attached to the edge of the pie-plate containing the hard candy. This comb is shown in the engraving. Now, why did the bees build that comb, and where did they get the material? It does not seem probable that they would consume honey from the combs for that purpose. If that is true we must conclude that they consumed more candy than they needed for food, and converted it into wax to build combs to fill in the vacant space.

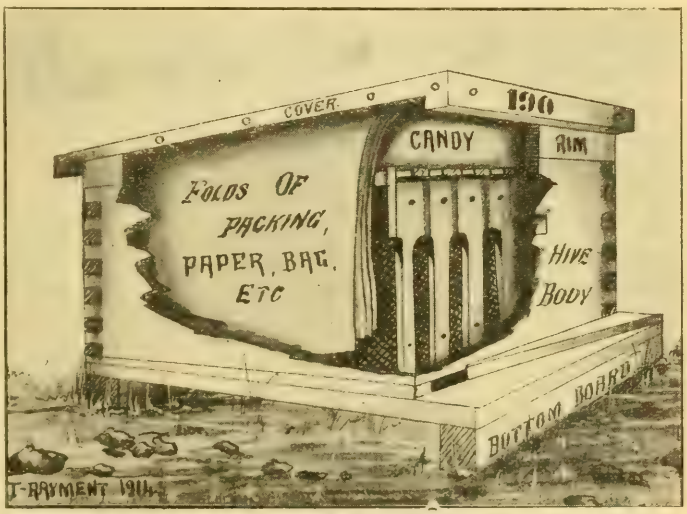
These experiments will be continued, and the readers given the benefit of the observations.

BROOD-REARING SUCCESSFUL WITH ALBUMENIZED CANDY

BY T. RAYMENT

Several correspondents view with skepticism the editor's thesis of bees breeding during cellar confinement. The basis of this unbelief is rather difficult to define. If the conditions existing in the repository were favorable for the inauguration of brood-rearing, then the absence of young (not the presence thereof) should be the occasion of any wonderment.

In this far antipodean land the wintering of bees presents special problems. It is generally true that no locations in Australia call for cellar protection; but it is undoubtedly correct that the majority of our apiarists would be well advised to give the question more earnest thought. This vast commonwealth—which at times runs the whole gamut of climatic changes — experiences meteorological conditions not quite unlike those of portions of the United States.



Candy placed above the brood-frames in a space provided by the addition of a 1½-inch rim.

As many are aware, the quality of the food exercises the predominating influence on insect life during the rigors of the winter. The accumulated store of vital energy is a strong factor governing the ultimate success of the insect cycle. All life is one continuous search after that most valuable element, nitrogen; and this is especially true of the *Apidae*. When the food supply contains the maximum of nitrogenous albumen or proteid (*i. e.*, the true value of the life-sustaining portion of all food), there is, therefore, a surplus available for conversion into eggs and larvæ. This last year during our spring overhaul (August 5, 1914), we were careful to observe the condition of certain groups of colonies that last autumn were specially fed up for winter. All the colonies are housed in single-story dovetailed hives, eight-frame size, with solid bottom-boards and covers of one-inch cleated boards protected with galvanized metal. Each hive contained a one-year-old Italian queen (all these were the progeny of the same mother), and about four pounds of bees. Something like sixty were wintered on natural stores gathered from Victorian* spotted gum (*Eucalyptus Goniocalyx*). A few colonies contained slabs of candy made by simply pouring boiling syrup on dry beet sugar, stirring slightly, and allowing it to set in paper molds. These were then

* One of the vast family of eucalyptus indigenous to Australia.

inverted over the frames and covered with four thicknesses of newspaper, with a final fold of sacking (see illustration). A wooden rim 1½ inches by the dimensions of the hive permitted the use of the covers described above.

Others, again, were similarly packed; but the candy was of different composition. In this case the beet sugar was boiled for one hour and twenty minutes, and some honey was then added. When the syrup was almost cold it was rapidly beaten into a fine creamy consistency and allowed to cake in shallow paper dishes. These were then given to the bees as mentioned above.



During the winter the bees consumed the candy and built small pieces of new comb. In fact, the cluster passed the winter surrounded by candy stores.

We again varied the treatment with another group. A number of new Hoffman frames (wired as for foundation) were laid out on greased paper, and a mixture of sugar and the white of an egg was then poured in and permitted to harden. (This candy was compounded of warm beet sugar whisked up with the white of an egg (albumen) into a creamy batter, and was very similar in appearance to the icing of a cake.) These Hoffman frames of candy were placed in the brood-nests without packing of any kind.

Here are the results of our observations in epitomized form:

Group 1.—Colonies wintered on honey consumed about 9 lbs. of food, and contained a small patch of eggs.

Group 2.—Colonies on plain sugar cage consumed 5 lbs. of food, and most had a small lot of eggs.

Group 3.—Colonies on sugar and honey consumed 4 lbs. of food, and possessed eggs and brood.

Group 4.—Colonies on sugar and egg consumed 3½ lbs. of food, and built new comb into the space so made. This new comb contained eggs and brood, a photograph of which accompanies this article.

To test the egg diet in another direction we gave some of the egg candy to colonies in group 3 with the result that brood-raising progressed marvelously. Up to time of writing there is no new comb in any other hives. Except that the continental war has dislocated food stuffs we should certainly have prescribed an egg diet for the whole apiary.

We omitted mentioning that on odd days all the colonies gathered a little honey from the cider gum (*Eucalyptus Gunnii*). Although we have tried both cane and beet sugar we have discovered nothing. The bees apparently do as well on one as on the other. I have in mind the British objections to beet sugar. In England the beet sugar was of German manufacture. In Australia it is made under the supervision of a Californian (Dyer). Would this make any difference?

Briagolong, Victoria, Australia.

COLORADO PRODUCERS DISCUSS COSTS, GRADING, AND EFFICIENCY

BY WESLEY FOSTER

The annual meeting of The Colorado Honey-producers' Association was held at the Auditorium Hotel, Denver, Dec. 28, 29, 1914. Some of those placed on the program could not be present, but their subjects were handled by others, and by participants in the general discussion.

The experience of a number of beekeepers in buying queens was given, and on the whole it seemed to be highly unsatisfactory; but several admitted that they thought it should not be given up, because, once in a while, a very valuable queen is secured.

The question of the cost of producing comb and extracted honey aroused active discussion, and pencils were used by many in figuring the estimates of the different speakers. One phase of the cost concerned the depreciation that should be figured on an automobile the first year. The figures



1. Front of The Colorado Honey-producers' Association store. 2. Four of the six who keep things going. 3. Main aisle of first-floor wareroom. 4. A glimpse in the office. Mr. Rauchfuss, Mgr. 5. Third floor (partial view) showing tinware, etc. 6. Liquefying-plant. Capacity 24 cans each 12 hours.

given by A. J. McCarty and A. C. Van Galder differed somewhat, and a short debate ensued, participated in by several others. Mr. Van Galder figured his time by the day and Mr. McCarty by the year. Mr. Van Galder has a farm that takes his time when not working with the bees, so that he does not need to figure a year's wages as does Mr. McCarty, who lives in town and is a beekeeping specialist.

Mr. Van Galder did not figure a 50 per cent depreciation upon his automobile the first year, as Mr. McCarty claimed he should. It appeared from the run of the discussion that Mr. McCarty endeavored to prove beekeeping unprofitable, while Mr. Van Galder tried to prove the opposite. As they had their own apiaries to judge by, and are both quite extensive honey-producers, I do not think a decision could be reached. Mr. McCarty claimed that, if a ten-year average were taken, his bees owed him something. Mr. Van Galder claimed a fair profit and fair wages for his time on a nineteen-year average. The bees paid him as well as or better than his farm. Here is an argument for diversified farming against specialized beekeeping. The farmer should include bees in his operations, not from a honey-for-the-table motive, but as a money crop.

The list of successful beekeepers who own and operate farms at a profit, or who are farmers and keep bees at a profit, is not small in the West.

Mr. Porter's paper, "Efficiency in the Apiary," brought out a number of points. If one has an auto he does not need a wheelbarrow in the outyard. Too many beekeepers can think of only one thing at a time. If they are clipping queens they must finish that before they care for a foul colony or a queenless one, or feed one short of stores. The beekeeper should, soon after beginning work in an apiary, say after examining five hives, so size up the yard that all needful work can be attended to that day.

The grading-rules were discussed, and some changes were proposed. It was decided, however, to leave the definite changes till after the National convention in Denver, as it was thought fruitful ideas might be brought out at this meeting. It was recommended that the names of the grades of comb honey be changed from No. 1, Choice, and No. 2 to Fancy, No. 1, and No. 2 respectively, to correspond with the names of the National grades.

The Colorado Teachers' Association held its convention at the same time as the Colorado Honey-producers' Association, and Prof. Dunn of Fort Collins, Prof. Beardsley of Greeley, and Prof. Spangler of Longmont were present at part or all of the beekeepers' sessions. This goes to show that the long summer vacation makes it possible for schoolteachers to take up beekeeping for health, pleasure, and profit very nicely. Prof. Spangler has over twenty-five colonies, and I believe that Prof. Beardsley and Prof. Dunn count their colonies in hundreds.

The convention was a well-attended one, the day sessions having attendances of between sixty and eighty, and the evening sessions about forty.

Boulder, Colo.

SOME VALUABLE POINTERS ON MOVING BEES

BY J. L. BYER

In view of the fact that we are being treated to a fine series on moving bees it may seem superfluous to say any thing more at this time. But it is a subject that will stand a good deal of discussion, as beginners are constantly wanting to know about moving bees. I know this from the fact that I get a good many letters bearing on this question.

My experience in moving bees is not extensive, but I have moved them under almost all conditions. On my first attempt by train I moved 100 colonies with fixtures 100 miles; and the second trip, some 250 colonies were moved nearly 300 miles along with a full equipment of supers and other fixtures. Although both trips were made during the latter part of May, not a comb was broken nor was there a quart of dead bees in both shipments together, so far as we could estimate.

For moving in the early spring in our latitude, if work is done at night all the ventilation I have found necessary has been provided by tacking wire cloth over the entrance. After bees have become populous, and brooding is going on rapidly, and weather is warmer, it is a good plan to screen the tops of hives with wire cloth. If the colonies are very strong, allow space on top for bees to leave the combs by having the wire cloth kept away from the top by means of strips of wood at least an inch thick—more is necessary in very warm weather. If local moving of bees for short distances is made at night, before clover

bloom, no water will be needed, generally speaking. After midsummer, when the weather is hot and hives very populous, abundance of room is necessary to allow bees to leave the brood, while water is an absolute necessity.

Fasten frames that are not of the self-fastening kind. Never take any chances on loose frames unless they are of the narrow variety and thoroughly propolized together. Possibly as good a way as any to fasten frames on top is to force with a hard-wood stick a thin wire nail through the end of the top-bar inside of the rabbet, leaving the nail sticking out a little so as to be easily drawn out again. It is not as slow a job to do this as one would think; and while there may be better ways, it is one of the easiest plans if the mover is in a hurry, and has but few tools at hand. More than once when thus situated I have used a wad of newspaper between each frame at the end, firmly pressing the wad down with the large blade of my jack-knife. Never has the plan given me any trouble.

Place on a wagon all hives to be moved, with frames crosswise of the vehicle. Most of the jolting on a wagon is sidewise. On a car, when moving by train, place frames lengthwise, as it is the shunting which causes trouble rather than side motion. When moving by train have a barrel of water at the door of each car. We moved the lot of two cars thus equipped and had no spills. The top of the water-barrel was left in place, and in its center a circle about 14 inches in diameter was cut out. For a good part of the journey I sat on one of these openings with only a blanket between me and the water, and yet I never got wet. That will show how effective it is to arrange for carrying water in this way. Our first carlot of bees was closed in with wire cloth on top with a two-inch space between the frames and the top of screen. They went through all right.

The second two cars were arranged on two plans. Part had shallow supers on top with cotton instead of wire, while the rest were as in first shipment—covered with wire. All came through in good condition; but, all things considered, we much prefer the cotton, and would use it exclusively in shipping bees again. No, the bees will not gnaw through the cotton—something I was afraid they might do until assured by Mr. Alpaugh that there was not the slightest danger of this. Those with cotton over them had entrances entirely closed with strips of lath; and although the weather was warm there was absolutely no loss of bees. Any colonies getting the least bit noisy were promptly treated to a dash of water over the top of the cotton, and then all would be quiet.

On our last trip we used one double-decked car, even when cautioned against it by so good an authority as R. F. Holtermann. The only disadvantage we found in using such a car was that the loading and unloading were very difficult, as one necessarily had to be in a stooping position all the time. So far as we could see there was not the difference in temperature we had expected, and one lot came through just as well as the other. As a common car will take about 100 eight-frame colonies on the floor it is needless to say the double-decked car is a good means of saving work when moving a hundred or more colonies and fixtures. No crating nor decking is necessary, the bees going in one story and the fixtures in the other.

In preparing colonies for any method of moving be sure to close all cracks that bees can get out of, and then after starting you will find you have missed some. We always carry a roll of cotton batting on such trips; and as soon as any opening is seen that is letting out bees it is short work to shove in a bit of the cotton; and, once in place, it stays there.

Moving bees is at best a dangerous job. Sometimes just a little thing may help to avoid what might have been an accident or loss of bees.

Markham, Ont.

A GOOD WINTER CASE FOR TWENTY CENTS

BY ED SWANSON

It is just as necessary to have bees protected in the spring as in the winter. My bees were gathering pollen to-day (Nov. 11), which I don't think they could have done if they had not been packed. The nights are so cold that, had they been left without winter cases, it would have taken the bees about all day to warm up enough to come out at the entrance. To-day the bees were out just as soon as it warmed up enough so they could fly. Strange as it may seem, every kind of vegetation has been dried up and frozen for three weeks, yet the bees have been carrying a lot of pollen, as I have seen by watching.

I am sending three photographs of my

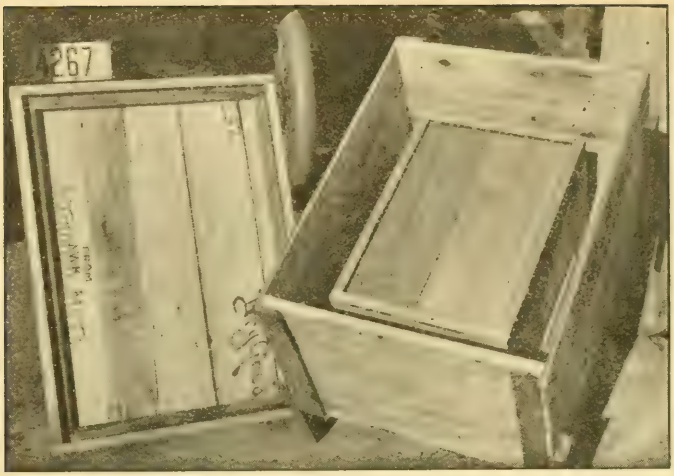


FIG. 1.—The case allows plenty of room for packing.

winter cases. Fig. 1 shows the case tipped up, giving a view of the inside, with the hive in place. The space for packing is about four inches across on the sides and ends, and about six inches on top. Beside it stands the cover. Fig. 2 illustrates the case with cover on as it looks when packed for winter.

In Fig. 3 thirty-four colonies are packed for winter (with my spring wheelbarrow in the foreground).

I use planer shavings for packing. I generally put some leaves in first, so in case there are openings around the bottom the shavings will not leak out. Now, these boxes I buy at the grocery at 10 cts. apiece, cover and all. They are just the right size the way they are. I nail strips on the bottom for the hive to stand on; cut an entrance in front, and nail some legs on.

For the cover I make a one-inch rim (just the size of the box) and nail the cover board on. Then I make another rim two inches wide, and put it on the outside of this, which telescopes over the box. Then I overlay it all with one-ply roofing. These covers I shall use as shade-boards in the summer, as they are large enough for that purpose.

These boxes cost me, finished, about 20 cts. each, not figuring labor.

I also send a picture of my homemade saw-table which I drive with a one-horse power gas-engine, and it seems to handle it nicely. I find this saw very handy in making covers, bottoms, and hive-stands.

Another photograph (Fig. 5) shows part of my bees in the foreground, and the barn where I keep my saw, auto, and some of my supplies in the background. The building has a cement floor, and I find it a nice place to work.

Has any one ever had experience with a trailer? Would a Ford car be too light to use with one?

Then there is another photo that shows my boy with his new wheelbarrow, loaded with a super. The little fellow says he is going to be a beeman, which I hope will come true.



FIG. 2.—Ready for winter.



FIG. 3.—Thirty-four colonies packed.

How many of our beekeepers have cameras? I think every beekeper should have one, as there are so many things that pictures explain better than any amount of description.

Spring Valley, Minn.

[Unless the trailer is built for the work it has to do by some concern understanding the difficulties, the proposition is not apt to be very satisfactory. Even at best it takes considerably more power to move a given load in a trailer than in a specially constructed box, say, located back of the front seat.—ED.]

QUARRYING FOR BEES

BY C. L. SNIDER

The geological formation in eastern Washington is such that there are many holes in the rocks, supposed to have been gas-pockets formed ages ago when the world was new. As there is no timber, there is no other place for runaway swarms to go. In starting to locate them the beeman knows that they are either on one side of the canyon or the other, which helps wonderfully, while if it were a bee-tree it might be any old place.

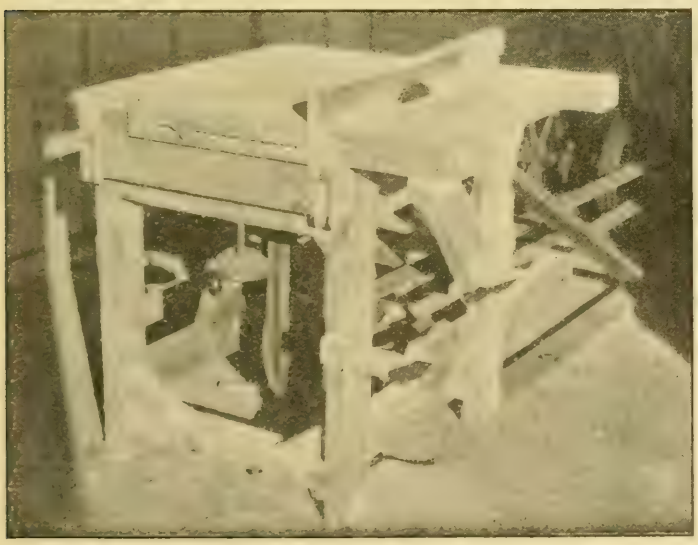


FIG. 4.—Home-made saw-table.

I lined the last swarm from an old prune orchard to a point on the third bench of rock back on the north side of the canyon. After some very strenuous climbing I found them in a small ledge about ten feet high. They went in at a small hole about as high as my head. As it was late in the fall of 1913, and I wished to save the bees, I put off taking them out until Aug. 15, 1914.

When the time arrived to begin operations I took my



FIG. 5.—A large garage makes a fine workshop.

friend and neighbor, W. H. Yarwood, Jr., into my confidence; and after explaining to him that there was undoubtedly just "scads" of honey, and that the bees could not sting through more than two inches of clothing, he agreed to see me through.

We arose at an early hour; and after a drive of about eight miles we unloaded the tools, which consisted of a smoker, two bee-veils, a steel bar, a rock-hammer, and a box for the bees. After donning the armor and firing up the smoker we built a platform of loose stone at the base of the cliff.

Upon examining the cavity we could see comb and bees a short distance within, and found that the rock was seamed and could be broken away quite easily. We gave them a few puffs of smoke, just to let them know that we were there, and attacked the rock with bar and hammer vigorously for a few moments, laying bare a part of the nest. A stiff breeze was blowing directly against the face of the cliff, and no bees were flying; neither did they rush out when we smoked them. After we reached the nest we cut out the combs and brood with a pocket-knife. The brood we fitted into frames in the box, and shook part of the bees on to the frames from the combs as we cut them out. The honey we put into a five-gallon gasoline-can as fast as we took it out.

After the comb had been removed we



FIG. 6.—His first load of honey.

found that we had but a small part of the bees, so we took a dipper and scooped out all we could reach. Then, taking the box to the top of the ledge, we awaited developments. It was not long before the bees in the hole became uneasy and began to fly up to the box. In about two hours we had fifty pounds of fine honey, and about all the bees (a large swarm), and were ready to start on our drive home, feeling that we had had the time of our lives.

I shall feed the colony for winter and add them to my apiary. I have taken many colonies from the rocks, and the procedure outlined applies to about all cases in a general way, although I do not always get the bees, as they go too far back in the pocket.

Mohler, Wash.

THE NEW MISSOURI APICULTURAL SOCIETY

Missouri Beekeepers Incorporate and Boost Inspection Law

BY AUSTIN D. WOLFE

This will introduce the Missouri Apicultural Society, incorporated. The Beekeepers' Association held its annual meeting at St. Joseph, Mo., Dec. 7-8, 1914. Almost the first matter of business was the consideration of the report of a special committee whose recommendations were adopted. The substance of the recommendations was that the association proceed to incorporate; that officers for the Missouri Apicultural Society be elected at the proper time; and that those present sign the articles of agreement as charter members of the incorporated body, all of which was duly accomplished.

The gathering at St. Joseph was of more than usual interest. At least two manufacturers were on hand with an exhibit. Subjects of general interest, such as wintering bees, and spraying with its dangers, were discussed, with the customary differences of opinion. A. V. Small, of St. Joseph, read an unusually clear paper on shook swarming. O. S. Mullins, of Holton, Kansas, was so pronounced in his advocacy of Carniolans that he almost shook the faith of those who have it fixed in Italians. Beekeepers present who had tried Carniolans endorsed Mr. Mullins. Dr. L. Haseman, of Missouri University, Entomologist of the Department of Agriculture, spoke of the value of bees to the orchardist; and Dr. C. R. Woodson, who owns one of the big commercial orchards of northwest Missouri, spoke on spraying. At noon of the 8th, seventeen beekeepers sat down for a cosy luncheon, and had a good time together.

The members of the association jumped at once from the meeting into the preparation of an inspection law. In working up the law they had the advantage of the experiences of other states in preparing a bill. The association is now hot foot after the beekeepers of the state to secure their co-operation and their influence with a view to the passage of the bill. Its passage will mean the preservation of thousands of colonies, and the saving of thousands of dollars to the beekeepers.

Officers of the Missouri Apicultural Society are: President, J. W. Rouse, Mexico; Vice-president, W. F. Fox, Garden City; Treasurer, J. F. Diemer, Liberty; Secretary, Austin D. Wolfe, Parkville.

Parkville, Mo.

[The proposed inspection law is very similar to corresponding provisions in the Ohio code, but deals with the matter more minutely. The Missouri association would give the inspector slightly greater room for the exercise of his own judgment, instructing him, for example, to visit diseased apiaries a second time only if he deem it necessary, while the Ohio law directs that he shall in every case make the second visit. In Ohio "three disinterested taxpayers" or the owner of the apiary must report in writing to secure inspection, while the Missouri inspector is directed to go ahead whenever disease is reported. In the former state, queen-breeding apiaries are to be inspected twice in the summer; in the latter, once. The Missouri bill stipulates the salary shall not exceed $1300, while the Ohio law leaves this to the Board of Agriculture. Other differences are minor.—ED.]

MR. A. D. WOLFE, NEW SECRETARY OF THE MISSOURI APICULTURAL SOCIETY.

Born in Montclair, N. J., in 1861; early in business; entered the ministry, and graduated from New York University and Union Theological Seminary; spent six years in Iowa and Nebraska; since 1896 has been in Missouri, acting variously as president of a school, librarian and registrar of Park College, and as pastor of prominent churches; got his first acquaintance with the bee when he caught a swarm in a coffee-box; fell in love with the art, and has ever since handled

the bee from both practical and scientific standpoints; reads enormously of bee-literature; keeps few colonies, but sets such a good example that his bees must work; makes his own equipment; belongs to the Missouri Apicultural Society; elected secretary in December, 1914.

His alertness, accuracy, training, education, and practical common sense make him a most valuable man for the place. His letters and records are models of conciseness, short-sentenced, and his points always easily understood.

Perhaps we ought to admire the man who tries but fails, but we don't. The man who tries and succeeds gets the applause, and such a man is Mr. Wolfe. When you meet him you recognize at once that you have met a real man—unassuming, modest, capable, and up to date. Our circuit judge, in deciding a case, said that a text-book twenty-five years old isn't of much value. The same will apply to a man even more, because a man can be up to date if he will, but the poor old text-book can't.

Having served as secretary of the old State Association for three years, and having known Dr. Wolfe for the same length of time, I feel qualified to introduce him to the beekeepers of Missouri, and beg that each will give him all the assistance possible.

By the time this is read we shall be incorporated under the laws of Missouri—a point we have been trying to reach for three years; and the credit for its accomplishment rests with the good members of the society; and every member is a good one or he would not belong.

Now let every citizen, whether a member or not, jump in and help get our good foulbrood law through the legislature at this term, and we shall make old Missouri one of the great bee states of the Union.

Liberty, Mo. J. F. DIEMER.

THE GENESIS OF BEEKEEPING ON THE PACIFIC COAST

BY EZRA MEEKER

One morning early in March, 1856, while at breakfast in our blockhouse at Steilacoom, Wash., a notice was handed me that four swarms of bees had been landed from the steamer just in from San Francisco, subject to my order. "Four swarms of bees?" I said in surprise. "I haven't ordered any bees." But I accompanied the young man who had given the notice; and, sure enough, there they were on the wharf singing their song I had with delight so often heard in the "States" in my boyhood days. The purser handed me a letter which, of course, I eagerly opened and read.

Dear Doc:—I send you four swarms of bees. Sell two swarms for $125 a swarm, and keep two for yourself. BUCK.



Ezra Meeker, pioneer beekeeper of the Northwest

William Buck and I had crossed the Plains together in 1852 to Bear River, where he took the road that led to California, while I bore off to the Northwest, and finally landed in Steilacoom on Puget Sound. He always would persist in calling me "Doc," because at one time I had read a little in medical books and thought of entering the profession of medicine.

The honeybee is widely distributed over the world; but there were none on the Pacific Coast when Buck arrived in California and I in Oregon. Buck had made two trips back to the "States," and brought out two shipments by steamer from New York and across the Isthmus, and had been very successful. So far as I know his shipment was the first honeybee west of the Rocky Mountains.

I sold the two swarms for $125 each; sent the remainder to my claim, and by the third year had twenty colonies. This was a time before white clover had spread over the timber land. There came a season of failure of honey from the wild flowers followed by an open winter, and I lost all but two colonies.

The raising of bees and the production of honey, however, since white clover has spread everywhere, has not been so pronounced a success in the Puget Sound country as in the eastern section of the state where the alfalfa furnishes rich pasture and the colder winters keep the bees indoors until the honey supply is near at hand.

I have long since discontinued beekeeping, though I never lost my interest in the mys-

terious little workers. To this day the active work of a colony during the day, and the contented hum (song shall I call it?) after nightfall has an attraction I cannot describe. This fascination has always remained with me from my boyhood days to the present, though I am nearly on the eighty-four-year mark. I have spent many an hour of restful companionship with the dear little fellows, and love to think of them as friends and admire their resentful bravery in defense of the treasure garnered from the storehouse of nature in the distant fields. Who does not profit by their lessons of unselfish industry for their kind?

Seattle, Wash.

THE FALLACIES IN THE "QUEEN ODOR" AND DISTRESS THEORIES

Another Explanation of the Smoke Method of Introducing

BY ELVIN M. COLE

The "thread of the truth" that the queen gives the colony its individual odor, Jay Smith, page 975, Dec. 15, is slender and easily broken. "Why will queenless bees readily unite with another colony?" Not because they have no queen odor, but because they have no queen. Bees do not live an individual life, but a colony life, and their hopes of life center in the queen.

Robber bees are not always from nearby colonies, as Mr. Smith seems to imply, but sometimes from a distant apiary. According to his theory they should have lost their queen odor and be made welcome.

If this theory were correct, the Alexander plan of placing a weak colony above a strong one could never succeed, as the bees having the odor of the queen in the upper story must pass directly through the lower colony having a different queen odor.

The "distress" theory of queen introduction, by A. C. Miller, page 977, Dec. 15, is no stronger than Mr. Smith's theory; and its author, so far as I know, has never advanced a single reason as to why "distress" will cause bees to accept a strange queen.

In the same issue of GLEANINGS Mr. Miller gives us a number of conditions under which his "distress" theory fails—namely, with "cracked, warped, leaky, unpainted hives," "hives of two or more chambers," or "if much of the hive is unoccupied."

"Unpainted" hives is doubtless a cruel shot at Dr. C. C. Miller, a young but promising beekeeper of Illinois.

All these exceptions which Mr. Miller notes may be easily supplied with a fertile queen by the smoke method when we understand the real principle on which the operation is based.

Those who hold to the idea that, in introducing by the smoke method, the colony odor is destroyed and bees and queen are scented alike, are equally hard pressed to explain many things. There ought rarely to be a failure if the odor theory is true; and it is hardly possible that J. L. Byer failed to impart plenty of smoke to his bees and queens, or that he failed to have them in distress, or that at Dr. Miller's they failed to distress a single colony, or impart to them the odor of smoke.

None of these theories explain the fact that a yellow queen may be introduced into a colony from which a black queen has just been removed, or that a large queen may replace a small one, and under conditions where the bees may see the newly introduced queen. If one doubts that bees are able to distinguish between yellow and black let him turn to GLEANINGS, Feb. 15, 1914, and read the article "Color Sense of the Bee." So if the "transmission of odor" or the "distress" were true, when their distress is over, or the odor of smoke has passed away, they would be aware that the queen in the hive was a stranger.

When a colony is prospering, but little precaution seems to be necessary in introducing a fertile queen to a colony from which a queen has just been removed. The odor of a laying queen is usually sufficient, and I believe it to be the only odor that plays any part in queen introduction; also that it is a protection to her in any form of introduction.

But if the harvest is slack, or robbers begin to trouble, some method of introduction must be employed. One such method employed is known as the smoke method, sometimes misnamed the "Miller smoke method," and I believe most failures when this method is employed are due to following too closely A. C. Miller's instructions, as he seems to have failed to grasp what he calls the "basic principle" of the method.

If instead of closing the hive a certain length of time, as advised by Mr. Miller, you will follow G. M. Doolittle's plan and depend on your ear to guide you, and introduce the queen when you have the bees roaring loudly, you will meet with reasonable

success. Mr. Doolittle says in "Scientific Queen-rearing" that he lost less than one queen out of fifty by this method. I believe the following to be the true reason for the acceptance of the queen when the smoke method is used.

The smoke has demoralized the guard, and the queen enters safely. You have caused the entire colony to load up with honey; and when their fright has passed away they are not inclined to make trouble. The fertile queen is protected by her odor. Most vital of all, you have caused the bees to search for their queen in order to protect her, and they are aware that she is missing.

How quickly they become aware of her loss is made plain in Langstroth Revised, page 264. "When she is taken from them under circumstances that excite the whole colony we can easily see how they find it out; for, as a tender mother in time of danger is all anxiety for her helpless children, so bees, when alarmed, always seek first to assure themselves of the safety of their queen."

When the smoke method is properly applied you have introduced her by demoralizing the guard; the bees are filled with honey; they have missed their own queen, and a fertile queen is in the hive. Now, why will she be accepted? Self-preservation! Why should they destroy this fertile queen and risk the life of the colony in raising and mating a virgin? Nature would forbid this risk at any time except under the impulse to "increase and multiply."

Editor Root touched the button when he said "Under-smoking or over-smoking may lead to failure." Take your time to do the work, puffing a little smoke along the entrance; keep every guard-bee back; gradually bring the colony up to a good loud roar; give them time to fill up with honey and miss the old queen, then turn in the new queen and nature will do the rest.

Audubon, Ia.

QUEEN ODOR AND BEE BEHAVIOR

BY S. G. CROCKER, JR.

While I agree with Jay Smith on a good many points in his article "Colony Odor of Bees Traceable to the Queen and to the Queen Only," p. 975, Dec. 15, 1914, I have seen phenomena which seem to point to something besides the queen odor as the source of colony identity. I think the actions of bees in entering what they know is a strange hive has a good deal to do with the conditions observed.

I have had a double hive with a queen in top, and another in the bottom, the body divided by a wire screen with an entrance to both bodies separate. I have taken the queen from the bottom hive and put the queen from the top hive in the bottom all at one operation, and the bees did not seem to know the difference. Now, why don't the bees note the difference in queen odor and ball the queen?

I have had one hive standing on top of another on account of a lack of space and communication between them. I have removed the top hive to work on the lower one, and all the bees that came out of the hive when I jarred it, as well as those that came from the field, have settled on the frames of the lower hive and gone down among the bees without the least fighting.

When these bees think they are entering their own hive, and show no fear, they are not molested. I think that the behavior of the bees is nearly as important as the odor of the queen.

Roland Park, Md.

[Jay Smith gives room for additional ways bees have of detecting members of another colony in his statement, "There may be other means which enable bees to recognize bees from another colony; but I believe the queen is the main factor."—ED.]

A MODIFICATION OF THE MARCHANT PLAN OF TRANSFERRING

BY FRED J. CARTAN

For the past four years I have been using a system of transferring from box to movable-frame hives similar to that of Mr. Marchant, May 1, p. 345, and without a single exception I have been entirely successful. It matters not what the size or shape the hives are from which I wish to transfer the bees; for should the old hive be narrower I nail a strip to the side, making it equal to the width of my hive. If wider or longer I reduce by covering part of the opening.

I use a divisible hive, 5⅝ inches deep, outside dimensions 16 x 20, ten frames, usually two bodies for brood-chamber, super

and brood-chamber interchangeable. I run for extracted principally, and use queen-excluders on all hives.

Four years ago I bought 28 colonies about six miles from my apiary. They were in all kinds of hives; but the greater part were in the old Simplicity eight-frame in poor condition. I wished to transfer them to my hives, leaving them where they were, as an outyard. It was the middle of April, and a good deal of honey was coming in. I knew it was "some job" to transfer in the old way, for I would have to work alone, and the former owner had hived his swarms on empty frames, using no foundation, and the bees had built the combs across many of them. After thinking the problem over for several days while I was getting my hives hauled up, I decided to try putting my hives on top of the old ones, letting the bees work into them.

It was and still is my belief that brood-rearing will go forward much faster if the new hive is placed on top rather than below the old hive, for there it receives the heat from the bees and brood. It was my observation and belief that the bees would remove the honey from the old hive below to the new hive above after the brood-nest had been established in the new hive, and would not store any incoming honey in the old hive.

For the factory-made hives I cut a strip 1 x 2 x 20; fastened two small brackets to each, and, after giving a little smoke at the entrance, nailed one to the side of each hive flush with the top. I then pried off the old cover and set one of my hive-bodies on top, each frame filled with full sheets of medium brood foundation. Over my frames I use a super-cover, bee-space above and below; on that a tray two inches deep, burlap bottom, filled with planer shavings; and, last, a telescope cover covered with galvanized iron. I use the tray so that the top of the hive will be the warmest, causing the moisture to condense on the sides and ends, where it will run down and out of the entrance.

After arriving at the yard it took me less than half a day to fix up the 28 colonies. There was no mess, no stings, no interruption to the workers, for they were working as freely as ever when I looked at them after eating my lunch.

Two weeks later I again visited the yard and found the bees working heavily on soft maple, from which they usually gather much surplus, there being many trees, and very large ones, of this variety in my vicinity.

Upon examining a colony I found most of the foundation drawn out and filled with honey excepting a half-moon-shaped space in the center of several of the central frames, and in some of these I found eggs. I immediately lifted off the hive-body, now acting as super; put on a 16 x 20 queen-excluder, and set the super back on. With the smoker I then drove the bees down through the excluder, lifted off the super again, and there, trying to follow the bees, was her majesty. Then I felt sure the system would work.

After replacing the super or hive-body carefully back in place, so as not to injure the queen, I proceeded to work the remainder. Distributing the excluders one to each colony, I lifted off the super without disturbing the covers; then put on the excluder and replaced the super. This took me less than an hour. When I left, each colony had a queen-excluder between the super and brood-chamber.

About a week later I again visited the bees and examined each colony. In every super, excepting five, I found brood and eggs, thereby proving I had the queen above the excluders. From these five I removed the excluders and covers; put on top a wire screen with a two-inch rim that I use for moving bees; smoked the bees, and drummed them up into the super. I then replaced the excluder, drove the bees below, and found the queens of all five, thus leaving the entire 28 queens above the excluders.

On this trip I gave each colony the second body with full sheets of foundation. Later, as the flow from vine maple came on, which is our greatest surplus-producer, I gave them a super with excluder below; and, still later, more supers as they were needed. I did not disturb the old hives until some time in June, when I swung my hives off the old ones on to their new bottom-boards and removed the old combs. I found them dry, and clear of every thing excepting a few cells of old pollen, all brood hatched, all honey removed above, and all drones gone. In the five which I had to drive I found more than an abundance of drones, which I trapped and killed.

From these colonies I secured a good crop of honey and one swarm. They were not interrupted in their work, and the transfer caused very little trouble. They were requeened the following year. Since then I have bought several colonies each year, and have transferred them in like manner with perfect success. As soon as I find eggs in the new combs I slip a queen-excluder under. Sometimes I drive the bees down at once and see the queen; at other times, if I am busy, I look for eggs a week later. The great point is, the bees are not interrupted

at all in their work. They store above until the queen is caught above the excluder; and then when the brood-nest is re-established they move the honey from below. I usually leave the old hive in place at least thirty days to be sure all honey is removed.

Last year one of the colonies I had purchased and transferred in this manner gave me 90 pounds of surplus (extracted), and one shook swarm, both coming through the winter in fine condition. In fact, this colony did as well as the best I had. One should choose a warm pleasant day to catch the queen at work above. Any time between ten and two o'clock will probably be best.

Corvallis, Oregon.

A FINE DAY IN SOUTHERN NEW BRUNSWICK

BY L. T. FLOYD

We placed our bees in the cellar Nov. 15, plentifully supplied with stores, consisting mainly of aster honey. We made an examination on Christmas day, and found that the fronts of the hives had a few spots of dysentery. On January 7 it rained all day, taking off what little snow was on the ground. The temperature rose to 50 degrees. On the morning of the 8th, at daybreak a thick fog hung over the valley, with a slight breeze blowing. The mercury stood at 29. The fog cleared about 11 o'clock, and the sun came out warm. In the cellar we found the bees noisy. There were more spots on the fronts of hives than we had seen in four years.

At 11:30 the thermometer had risen to 40, and while we took out one hive and placed it on its summer stand it seemed too cold for the bees to fly. At noon the thermometer showed a temperature of 45. A trip to the orchard showed the bees in full flight. We hustled to the cellar and carried our twenty colonies to their summer stands as fast as we could. We pulled off the covers and let the sun shine on the frames and bees, giving each hive a light kick or two before we left it. By the time we had them all out, the thermometer registered the maximum at 48.

We had an hour and a half of this kind of sunshine, and the orchard was well "sprayed," I can tell you. The way those bees enjoyed that hour and a half repaid us well for the work of carrying them out. After they had had a good flight they cleaned the few dead bees, cappings, etc., off their bottom-boards, and by 4 o'clock we had them all back in the cellar again. Since that time they have been as quiet as I ever saw them.

This divides the winter pretty well for us, as we generally get them out by April 1. We think these bees would have been in very bad condition before that time if they had not had this flight. We had no trouble other winters; but in previous years they generally had a good part of their stores in clover honey. Clover failed us in 1914.

Woodstock, N. B.

OKLAHOMA BEE-LAW

BY N. FRED GARDNER

At the time of writing this article there has been introduced in the Oklahoma legislature a bill drawn along the lines advised by the Bureau of Entomology, U. S. Depart of Agriculture, providing for the inspection of bees and the necessary regulations to compel the treatment and destruction of all diseases.

This bill places the authority in our State Department of Entomology, and does not create any new offices or departments, therefore the expense would be very small and only such as would be required in actually doing the work.

There has already been some trouble with foul brood in several parts of the state, and the need of the police power in this bill has already been felt. Space will not permit the printing of the bill here; but there are surely many readers of this journal in Oklahoma who keep bees and understand the importance of such a law. They surely know of the expense in many of the other states in fighting the disease after it had gained a foothold.

This is the strong argument in getting a law at once, so bee disease may be controlled cheaply before it causes a serious loss in Oklahoma. If this work is begun in time we may be able to keep the state practically free from disease.

It is not known just when this bill will come up for a vote; but if you are interested, write your state senator and representative at Oklahoma City at once, urging them to support House Bill No. 294 by Lemon.

Geary, Okla.

Heads of Grain from Different Fields



The Backlot Buzzer

The kind-hearted lady whose gardener borrowed a hive to save a swarm of bees that lit on her rose garden last summer came over here all excited this morning. She found a dead bee on the running-board.

Is It Disastrous to Disturb Bees in Winter?

Some time ago I noticed that one beekeeper said he had lost all his bees by disturbing them in the winter; but I am of the opinion that, unless he was very careless, the loss of the bees was due to some other cause. Several times I have had occasion to disturb bees in winter, but so far have never had any bad result follow it. Of course I took care to go at it with as much care as possible.

One winter I wished to transfer about a dozen colonies from box hives to frame hives, and I succeeded in doing so without any loss. I wished to get them in shape before brood-rearing commenced, as I do not like the idea of transferring when there is much brood in the hives. I waited till the temperature rose to 45 or 50 degrees. Then I moved the hives to one side, and set the new hive in its place. Then I pried the old hive apart and took the straightest combs, tied them in frames, and when I got three or four frames fixed and placed in the new hives I shook all the bees out of the old hives, and filled out the remaining frames. The bees would cluster again before night; and even if it grew colder there was no bad result.

As a rule it is not safe to handle bees when it is too cold for them to fly; but I have done so without losing more than a few which flew out and got chilled. A few times I have had either to feed in cold weather or lose some bees; and when the weather did not happen to warm up soon enough I would open the hive and remove some of the frames till I got to the cluster. Then if possible I would put in a frame of honey or take one of the empty combs and pour in as much syrup as I could. I would place it next to the bees and close the hive as soon as possible. I even introduced a queen to a queenless colony in the middle of winter, and it worked all right.

Stonecoal, W. Va., Jan. 18. W. C. MOLLETT.

Death of Prominent Massachusetts Beekeeper

In the Jan. 1st issue one more name should have been added to the list of prominent beekeepers who passed away during 1914. Franklin James, of New Bedford, Mass., met an untimely death Sept. 28, at 45 years of age. He was a carpenter and builder by trade. While working upon the roof of his own house, by some misstep or loss of balance he fell 35 feet to the ground, striking on his head and breaking one rib which punctured his lung. He lived 39 hours, and died without regaining consciousness.

Mr. James left a wife and three children—a daughter about 17 years of age, and two younger sons. He was an enthusiastic beekeeper, and a member of the Worcester Co. Beekeepers' Association. At the time of his death he had about 75 colonies of bees, most of which he kept in an outyard at Middleboro. A few colonies he kept at his city residence in New Bedford. He had planned to make increase to about 100 colonies.

Only two weeks before his death he had a large and fine exhibition of honey and wax at the Southern New England fair held at Lincoln Park. He often came to my home—the last time about a week before his sad and untimely death.

North Westport, Mass., Jan. 14. J. M. LEWIS.

Natural vs. Artificial Passageways

Upon the question of cutting horizontal openings through the tops of frames I quite agree with the editor, page 1000, Dec. 15. Now, the first thing I have to say against this method is, I should think the bees in the fall would fill up these crevices with propolis to such an extent that it would be practically impossible for bees to pass through them.

Those using the super covers, such as are sold regularly with the Porter bee-escapes, know that there is a half-inch space between the frames and board. These covers can be furnished by dealers with no space cut out for the escape at no additional cost. Those who wish to try Mr. Borden's method can do so in this way without mutilating their frames, and I would advise them to do so before cutting holes in the top-bars. Another advantage of using these boards is that a half-inch space is left, as I said before, between the tops of the frames and the board; and this space, being clear, cannot be filled with propolis.

Why not be content to let the bees cut their own passageways through the comb, as they will do in spite of fate? You can rest assured that by this method they will cut no more than they want.

LEWIS L. WINSHIP.

Enthusiastic Praise for Biennial Yellow Sweet Clover

Referring to the article by F. W. Van de Mark, page 937, Dec. 1, I should like to say that I got first prizes on biennial yellow sweet clover, butter, and honey at the fairs hereabouts, and against all odds, and will receive a diploma for yellow-sweet-clover hay. I have cultivated yellow sweet clover 33 years now.

Bees will not touch any thing else when my clover is in bloom. German and Austrian experts have

visited me, who claimed that it would have been incredible to them if they had not heard the noise and smelled the honey in my meadow when it is in full bloom. I have about 100 acres in yellow biennial sweet clover.

When I began to experiment with it every one said my farm had gone to the dogs. It frightened me somewhat, as it was so dazzlingly yellow, and all volunteer. If it had been white sweet clover, which grows eleven or twelve feet high, I should have been ruined. But mine grows about three feet high, and it is not as hard as wheat straw when ripe. Every thing eats it.

I am not a beeman, but furnish others much honey. One German claims a medium colony made 45 lbs. of sweet-clover honey in two weeks six miles from my meadow. I say rely on biennial yellow sweet clover. It is the best we have ever heard of or seen.

Sturgis, S. Da., Dec. 18. JOHN FREDRICK.

Defense of the Ames Bottom-board

In Heads of Grain, Jan. 15, 1915, "Subscriber" says the Ames bottom-board for four hives is faulty because, when the colonies are strong, the weather very hot, and a sudden check occurs in the honey-flow, the bees will "scrap" with their next-door neighbors.

Now, is it not the custom of most beekeepers to set their hives in pairs? While my bees are set four in a cluster they are really in pairs, for two face east and two west. Will they scrap more on these bottoms than on single bottoms set in pairs? Certainly not. I have had bees on these bottoms for several years, and never had any scraps from such a cause.

As for young queens returning to the wrong hive, that is possible under any arrangement one may use. But how often will they mistake right and left? So far as I know they never do.

As for removing cleats and placing them at the edge for summer and back to the center for winter, such work is useless, and useless work is what I am trying to get rid of.

It would be far better to use a single bottom-board for each hive on top of a plain platform, which would be the bottom of the case.

Peninsula, O. A. C. AMES.

Wheat Shorts and Candy in Place of Pollen

I have been using common wheat shorts as a substitute for pollen, and I think it is the best I have ever heard of. I have given every suggestion a trial.

My candy is made along the lines of the Good process. I use honey and granulated sugar until the mass is thick enough to knead like soft dough. Finally I work in the shorts, leaving some on the outside of the candy to prevent sticking the bees and the frames.

I lay between half a pound and a pound on top of the brood-frames. The bees will utilize all, none will be stuck up with it, and no candy will be left on top of the frames.

This quantity of feed is enough for an ordinary colony for two weeks. More should be used as needed. MRS. S. C. THORNTON CROMWELL.

North Yakima, Wash.

Pear Blight Not Traceable to Bees?

As to bees and pear-blight, page 974, Dec. 15, 1914, I would not maintain very stoutly that bees are responsible for blight-infection getting into the pear-blossoms, for I am not convinced that they are. However, that the infection does get into the blossoms is undeniable. Possibly the ants carry it there, and doubtless they and other insects carry it from blossom to blossom; but after it is in the blossoms, to say that bees are not responsible for carrying it from blossom to blossom is absurd, except where there are no bees. The nectar in an infected blossom quickly becomes an active blight-virus; and no insect, bee or other, can eat from an infected flower and then from uninfected blooms without transplanting the disease. No puncturing of the flower is necessary, as the nectar itself is a highly susceptible culture medium (Burrill, University of Illinois), and the infection readily transfers itself from the nectar into the tissues of the blossom.

Carthage, Mo. BENJAMIN C. AUTEN.

Finds Bee-hunting Profitable

My experience with bee-trees I believe confirms the statements of Elias Fox which he made in his article on page 32, Jan. 1. Late in August, 1913, I transferred a hybrid colony from a tree, wintered them in a cellar with my other bees, and last summer secured two colonies increase, not to speak of 75 lbs. of extracted honey from the parent colony.

Last October I captured a fine colony of three-banded Italians. A few of them showed four bands. Now while I have them nicely tucked away in my cellar I am looking forward to better returns from the Italians than I secured from the hybrids, if weather conditions prove as favorable.

Beginners and those who are not thoroughly schooled in the art of handling bees would be likely to have this performance end in utter failure.

Elroy, Wis. CHARLES SHELDON.

Successful Wintering on Aster Honey

Hurrah! the bees got a good fly yesterday, the first since early November. They show no dysentery, and have nothing but aster honey. They seem to be in fine condition.

Last year my bees wintered on aster honey and came through in fine shape, though they were not confined more than three weeks at a time, as compared with the recent nine weeks' confinement.

I had the finest aster honey this year I ever had. It beat clover, both in color and in flavor.

Underwood, Ind. RALEIGH THOMPSON.

Comb Honey Fumigated with Moth-balls

Last year we sold some comb honey to a number of different stores; and after they had disposed of this consignment to their customers they received complaints that the honey had a bad taste and smell. We investigated and found that the honey was some that we had bought to meet the demands of our trade. It had a peculiar taste and smell, similar to tar and moth-balls.

Cleveland, Ohio. J. C. ZABOR.

A Warm Day in Winter

BY GRACE ALLEN

This must be Spring's own day of days,
The earth looks up in mild amaze;
The sun is warm—a soft wind blows
From out the mystic Land of Rose
Where days to come in spring lie bound.
This day our gallant Winter found,
And loosed her bands and set her free,
And frolics with her merrily.

And here within her magic glow
Our hives are gleaming in a row.
Out fly the bees from every hive—
"Alive!" I cry, "they're still alive!"
I kneel beside each narrow door,
And then my heart sings out no more;
For some are flying overhead,
And some are dragging out the dead.

A. I. Root **OUR HOMES** Editor

Give us this day our daily bread.—MATT. 5:11.

"THE GREAT ARMY OF UNEMPLOYED," CONTINUED.

There seem to be two great classes of people in this world of ours—those who work for somebody else, and the "somebody else" who employs people, or who sets people to work, and pays wages or salaries. We frequently hear it said of some one, "He is a good man to work for some one else, but he seems to have a poor faculty for working for himself." In other words, he needs a "boss" to tell him *what* to do and *how* to do it. Of course there are also many who belong to both classes, more or less. These good people "work out," when wanted, and work at home when no one seems to need them. Farmers and gardeners belong to this class largely, and we might say, also, carpenters, masons, etc., especially in the small towns and villages. This latter class also very often *hire* help occasionally. Farmers who exchange or help each other come under this class, and I am sometimes tempted to think these accommodating "neighborly" people are the very best folks in the world. As the working people greatly outnumber those who hire great numbers, it would seem naturally as if the latter would be held in great esteem as benefactors of the public at large; but it saddens one to think of the strikes, and even bitter warfare, that are almost always going on of late between capital and labor.

Another thing might be mentioned here. There are many men—yes, and boys—who work for wages until they get a little ahead, and then start business themselves, gradually employing help. Why, the largest part of our great business men started life on a farm, and also, as a rule, started as poor boys; and this fact suggests what some of you may have already guessed, that I am once more going to advise everybody to "make garden and keep chickens in the back yard"—that is, of course, in place of being idle, and belonging to the "great army of unemployed."

It has occurred to me that a little of my experience here may be helpful. I was weak and puny in childhood, as I have told you. My "pipestem" arms and legs were a standing joke in that merry family of seven*—three older and three younger. I was not only weak and frail in body, but I was slow to "catch on," believed every thing anybody told me, etc., also bashful and timid. I mention this because my story may be helpful to other timid boys and girls. Every winter I had a recurrence of my early lung troubles, and I had such spells of coughing I used to carry in my pocket some pods of the wild lobelia to chew when the cough was bad. When the lobelia produced a slight nausea the cough let up.

I am glad to remember I always wanted to go to school; and, even if I was tormented by the big boys, the "schoolma'ams" were always my particular friends. They seemed to take the place of my good mother. I remember one time when the six children, and perhaps father too, were laughing at my credulity, queer ways, etc., that mother said, "Now, you just mark my words, and wait and see if Amos doesn't do as much in the world as any one of you." And the good faithful mother worked hard to make her prediction come true. On account of sickness and some other troubles there was a time when it was a little hard to provide for that family of nine (including the parents); and to make ends meet mother begged for a garden, and chose me for her helper. This brought me in touch with the seedsmen and seed catalogs of that early day; and very soon mother and I had the finest garden in the neighborhood. Father, although he was a fair carpenter, had a strong inclination for farming; and when I was about a dozen years old we all moved back to the farm in Medina Co. in spite of protests from the rest of the family. I wasn't a success on the farm. I was too frail and weak, and didn't seem to catch on to big fields and horses and cattle. One spring day, at dinner, mother asked if she could have Amos to make garden. Father replied, "Yes! take him and keep him as long as you like, for he doesn't 'earn his salt' out in the field." This, of course, was said as a joke; but mother quietly gave me a look that I understood. Our garden prospered as gardens made by mother and me *always* did. Perhaps father's conscience troubled him a little, for he manured and fitted our ground in fine shape, and in due time that garden and the chickens furnished fine dinners for the men who worked in the fields. Mother was waiting her chance; and one day after all had finished an excellent dinner she said:

"Father, can't you now take back a little of what you said about Amos not 'earning his salt,' etc.?"

I distinctly remember the good-natured

* In spite of my frail constitution in childhood I am at 75 strong and well; and of the seven, only one brother and one sister are left.

smile as he replied: "Yes, I take it all back, and more too; for I really believe that just now he is the most profitable man we have on the farm."

I hope the above may be a good lesson not only for fathers and mothers, but for boys and girls who are good for *some* things and not for others. You wouldn't think from the above that I was the sort of chap that would ever hire help by the dozens or hundreds, would you?*

It was not until I was grown up, had a family, and GLEANINGS was started, that I had any serious thoughts of hiring help for any other reason than to help *A. I. Root.* I have told you of meeting the young preacher, Rev. A. T. Reed. Well, he preached a boyish sermon about working for *Christ and humanity* that made my heart bound at the thought of standing by his side and working *with him* for poor needy and hungry humanity. In a prayer meeting not long after, I mentioned the matter of giving work to those in need. I have told you about one young girl whose mother told me she "wasn't a mite of use" in the home, and how this girl later on took charge of the subscription list of GLEANINGS, etc., but I did not tell you of how, in answer to my prayers, I gave work to almost the whole town—fathers and mothers and children. When our brick store that held the windmill was full of workmen, upstairs and down, we had a lot of children in the yard back of the store using boxes for seats and tables, nailing up small work, making queen-cages, etc. A friend came along one day; and after looking through the busy factory he came among the juveniles, out in the open air.

"Well, I declare," said he, "this must be what one would call 'the little end of the horn.'"

A prominent business man said a few days ago, "The first work I ever did was for A. I. Root, and I worked for *three cents an hour.*"

I now recall that I started the schoolchildren at 5 cents; but some smaller ones who cried because they couldn't have "a job" I set to work at 3 cents.

Since laws have been passed prohibiting "child labor" I have often felt that they are overdoing the matter. Many children would be far better off busy at work, especially in the open air, than running the streets in idleness.

In order to give as many of the needy work as possible it became a study as to what we could make in Medina instead of sending off to buy it; and I soon had a carpenter-shop, a blacksmith-shop, a machine-shop, printing-office, tin-shop, etc., and thus I was able to employ all kinds of help, each one working at his own trade, and all this directly or indirectly for the bee business. I even went into our county jail (as you may remember) and took the boys who would much rather do *real work* than to stay there in idleness. Had I done all this to *make* money, and get rich, instead of lending a helping hand to humanity, I could not have consistently used my little prayer, "Lord, help," as I did all along.

Let us now pause a minute. A good kind friend has suggested that Edison (see p. 959, Dec. 1) could have done just as much for humanity if our Government had owned his plant; and also that, if intoxicants were sold to the people at *bare cost,* so there would be no money in the traffic, the *saloon* business would die at once. In regard to this last suggestion, if I am correct, the "dispensatory" system was right along in that line; but it soon developed there was not only intemperance but shameful fraud almost as bad as before.

In regard to Edison and others like him working for the Government, I shall have to confess I do not understand just how it could be done. Those who have written me, if I have got it right, suggest that every workman should have just what he needs and no more, and high-priced salaries are to be done away with; for Uncle Samuel is to own every thing, and there are to be no more either rich or poor. This condition *may* come to pass in the "kingdom of heaven," but I have little faith that it ever will here on earth. If humanity could not own and control patents, big farms, great factories, etc., I greatly fear that, without the incentive of *ownership,* little would be done.

As might be supposed in employing so many people, I was often short of funds; but I made it a Christian duty to pay off all every Saturday night; but to do this, other bills for stuff often had to wait. At one time when I was pushing ahead and branching out almost recklessly, a good friend in our Medina bank wrote me a letter. A good many old heads in business were predicting disaster ahead of me, and

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* When I first began waiting on Mrs. Root, a relative of hers, and a very good wise woman, remarked to Sue that she feared I would never have "vitality" enough to support a wife. That word "vitality" sort o' "stuck in my crop," and I said, "Sue! we'll see about that," and I think the remark did me good. When I began to realize that I should likely be "handicapped" for life in the way of health, I began daily bathing, etc., and studied the best authorities in regard to building up a good strong constitution. This relative, years after, when she was left a widow, made our bee-veils in her own home for many years, and I fear no one has ever made them since her death with such painstaking care as she did.

this friend asked me to consider not only what such a thing would mean to my friends, but to those who were beginning to have faith in God and his promises to his children, for all knew I was praying daily for God's guidance.

I thanked "Robert" for his kind plain letter, and then added, "To show you how in earnest I am in my thanks, just watch and *see* how I am now going to *pile up* something against a 'rainy day.'"

Now let me explain that my good pastor, Rev. C. J. Ryder, had been talking with Robert about this very matter before Robert wrote me that letter; and some time later I got a letter from Dr. Ryder, with congratulations, saying Robert had written him I had $10,000 in the bank, and all outstanding bills paid in full.

I give the above incident to show the great need—yes, almost the *necessity*—that one who employs *must* have some ready cash ahead. From that time forward I found out the great advantage of having some money ahead for emergencies.

Now a word in closing, to the unemployed. First, "get busy" at something. If no one needs you, get busy at home. Cut down expenses in every direction. Run errands; do every thing yourself. Make the things you need; improve your place; your home; stop the outgoes.

Second, cut down the expense of your "daily bread." I have made little reference to our text; but we are coming to it now. Mrs. Root wanted some graham flour. We usually grind it, as I have explained, from the wheat we brought from Ohio; but that is so near gone I bought some. They had it only in fancy pasteboard packages at 25 cts., and the packages contained only 44 oz. of flour.

May the Lord be praised for the recent law compelling a plain printed statement of the amount of food placed in either tin can or pasteboard package. Well, 25 cts. for 44 oz. will be at the rate of about 9 cts. per lb., and this package was put up when farmers were getting probably about 90 cts. for their wheat. Cost of wheat, 1½ cts. per lb.; and graham flour, which should contain every particle of the wheat, is 9 cts. per lb. How is that for "profit"? Since then I have found some "whole-wheat flour" at 5 lbs. for 25 cts. Now, this is not all. This fancy package of graham flour, with reading in fancy letters all over it, telling of its wonderful "superiority," does not *compare* with the flour from our little mill from the wheat we grew ourselves in Ohio. The graham flour is only one among hundreds of illustrations. If you are out of work, and the matter of "daily bread" begins to trouble you, steer clear of "fancy packages" of food. Get a little mill, or use your own coffee-mill. (You will be far better off with the *wheat* coffee.) Hunt up some good wheat and corn. Get it of the one who grew it if possible. Make shortest *possible* cuts from "producer to consumer" in all the food you use. As soon as spring opens, make garden and thus take your "daily bread" straight from the loving hand of "Our Father who art in heaven." The same with chickens. If you can scrape up enough to buy a laying hen you can commence this day. If you live as we do in the South, you can plant seeds every day in the year. Save the leaks; make short cuts; and when you come to ask God's blessing at the breakfast-table you can, with a clear conscience, say, "Give us this day our daily bread."

* Yes, the fancy package *did* contain also a coupon, and when you got a lot of coupons you could "draw" a wonderful "prize," etc. *Gambling*, in the matter of "daily bread"! Is that the way to *reduce* the "high cost of living"?

THE FLORIDA REDBUG.

I have several times mentioned the *Florida Grower* as a periodical that every one interested in that State should subscribe for, because it really *does* tell "the truth about Florida." Now read the following:

Can you tell us through your columns what to do for the "chigger," or "red-bug," that pesters us all during our stay, the one drawback to our visit in Florida? I'm not afraid of any thing else that I can't see; but this redbug works at night and keeps us awake. MRS. G. W. B.

Answer.—The redbug, or chigre, is certainly a pest wherever it is found, and I discovered it in Illinois and Ohio long before I came to Florida to live. There are people who haven't the slightest acquaintance with this little villain, even though they walk beside those who are in an itching agony, and the reason for this I am not able to suggest. They have always bothered me more or less, but I find that I am not poisoned by them as I was in my early introduction to them. No doubt one becomes vaccinated, as it were, with their poison, and in the course of time enters the ranks of the immune. I know of no infallible specific against their attacks, but I can give various remedies that have served me and my friends in the past, and each is more or less efficacious. As a means of protection before going out in the grass, rub the feet and ankles and well up toward the knees with a highly saturated solution of spirits of camphor. This is bitter, and they must sample this before they can puncture the skin, and often they back out rather than investigate further. Listerine will sometimes prove a protection, and so will kerosene and bacon grease. The latter two are not pleasant remedies to carry about on one's person. But neither is assafœtida, and you remember how we once stood for that obnoxious odor to protect ourselves from smallpox. Bacon grease and kerosene are godly things compared with that. If you find yourself in possession of the little savages the bacon grease or kerosene will give them a death blow about as summarily as anything I know. Let

this be followed by a very hot bath. If one has the luxury of a bath-tub in the home, a vigorous scrubbing with a stiff brush in water as hot as can be borne will destroy those that have not yet buried themselves in the flesh. If the deed is done, then one can only spat the itching spots with camphor, alcohol, or ammonia, and make the best of it. You'll get over noticing them after awhile, which will console you more or less until that happy time arrives.

Before I saw the above I had been wondering if one could ever become really immune to redbugs the same as he does to stings of bees. My experience does not quite agree with it. If, however, I could keep in a beaten path and avoid brushing against weeds and palmettos back in the woods I would not have very much trouble. Sometimes something comes up when I am in a great hurry to get through the thicket, and I take my chances. Then I am troubled by redbugs. If, however, I should rub my feet and ankles with citronella before going out in the thicket, I have little or no trouble; and as this citronella keeps off mosquitos and sandflies I would suggest it as the best and simplest preventive. Another thing, where the woods have been cleared up and crops planted, there is no trouble with the redbugs, and there is little or none to people who live in town unless they get out among the wild woods and scrub palmettos. All such pests belong more or less to new countries before the land has been settled; and, as suggested above, there *are* certain persons who are never troubled, no matter where they go.

HIGH-PRESSURE GARDENING

A SINGLE TREE WORTH $30,000.

The article below was mailed us by our youngest daughter, with no explanation as to where it came from, except the remark, "I thought father might like to see this; perhaps it is a fake." Before deciding to give it a place in print I submitted it to my good friend Reasoner, and he replied that it is substantially true, and that one of our Bradentown people with whom I am acquainted had actually seen the tree. To make sure, I called on the lady and got her endorsement. With this introduction I give it to our readers.

The most valuable fruit-tree in the world, so far as can be learned, is an avocado, or alligator pear-tree, owned by H. A. Woodworth, who lives on a five-acre ranch at Whittier, Cal. The tree is insured against damage by wind or fire with Lloyds, of London, for $30,000. During the year 1912 it yielded its owner a profit of $3206. The tree is enclosed by a slat fence 38 feet high, which the insurance company requires Mr. Woodworth to maintain.

Seven years ago the tree sprang from the seed of an avocado that was growing wild in the highlands of Mexico. Burt Rideout, a Los Angeles County nurseryman, planted the tree on his five-acre ranch; and when it was three years old he sold the ranch to Mr. Woodworth, a retired Wall Street broker.

Nobody suspected that the tree would prove the money-maker that it is. The average alligator pear-tree does not come into bearing until it is eight or ten years old. Mr. Woodworth's avocado began bearing when it was only four years old. During the fifth year it produced $1716 worth of fruit and bud wood. In its sixth year it netted its owner $3206, of which $1500 was derived from the sale of alligator pears, at the rate of $6.00 per dozen, and the remainder, or $1706, was derived from the sale of buds at from ten to twenty-two cents each.

Owing to the scarcity of productive avocado trees there is always a strong demand for bud wood with which to bud young seedlings in the nurseries; and bearing heavily there was a general rush for bud wood. Mr. Woodworth sold all the buds that he cared to take from the tree, and raised the price of buds to twenty-two cents in order to stop the demand, but that did not check it.

"I was afraid for a while that we were going to injure the tree by cutting buds," he said; "but I guess we didn't hurt it in the least. At any rate, it is loaded with pears again. We took more than 1500 pears from it prior to New Year's day, and I should not be surprised if the total crop amounts to 3000 pears, for the branches are filled with green fruit which is hardly distinguishable, because it is nearly the same color as the foliage." Mr. Woodworth is very proud of the tree.

"That the tree bears any fruit at all is indeed surprising," he remarks, "for it hasn't had half a chance since it made a reputation for itself. Every day throughout the year the crowds of tourists who visit Whittier to see the sights come here to pay their respects to the tree, and they will never be satisfied until I take them within the enclosure so they can touch the tree, break off a twig, take off a leaf, peel off a little scale of the bark, just to see what it looks like.

"Curious persons keep the ground around the tree trampled down so hard that it would be useless for me to attempt to fertilize it. In that connection I may add that fertilization for avocadoes is a waste of time and money. So is sub-irrigation.

"The avocado comes from the highlands of Mexico and Central America, where it gets little or no moisture from the surface soil. It has a tap root that goes straight down to moisture. With such roots as that, it is useless to try to introduce water and fertilizer from the surface.

"Another thing about the avocado is that it does not need spraying. It is more nearly free from pests and disease than any other tree grown in the West."

The prize tree blooms in March. The crop begins maturing in September, and continues to ripen until late January. A curious thing about the alligator pear is that it is worthless if permitted to ripen upon the tree. The pears, which are light green in color, must be gathered when they have reached the proper size, and laid away in a dark place to mature, like bananas; and when they become mellow they are ready to serve.

The average avocado, when mellow, weighs from eight to ten ounces. It is neither acid nor sweet. It contains a high percentage of vegetable fat—more than that contained in any other known fruit. Persons who cannot digest other fruits find the avocado easy to assimilate. It can be served as a sauce or

dessert. Some use sugar on it, some use salt, vinegar, olive oil, pepper, or spice, and some eat it raw. It is a fruit that may be served in innumerable ways, all of which are good.

The alligator pear-tree is just now claiming the attention of orchardists in many parts of the world. It is not many years since its introduction into this country. The first trees brought into the United States came from Hawaii and South America. Nearly all of them died. The alligator pear from the Mexican highlands has proved to be the best, for the reason that it is accustomed to a high altitude in its native haunts, and it withstands the cool weather of the Southern States quite well.

Right here come in some tables of figures; but as they are not very clear to me I omit them. The paper closes as follows:

The avocado selling at 40 cts. was a two-pound one. It thus sold at 20 cts. per pound. On an average it takes eight eggs to weigh one pound. With eggs selling at 50 cts. per dozen, or 5 cts. each, they would sell for 40 cts. a pound. With avocadoes selling at the enormous price of $6.00 per dozen, and possessing, as has been shown, the same food values as eggs, it will be seen that they are selling for 15 cts. a pound cheaper than eggs are selling for, when the latter move at 50 cts. per dozen. The same line of reasoning will show that the consumer could afford to pay $7.20 per box of 48 avocadoes; and at the same time he can buy eggs at 15 cts. per dozen.

Thirty-eight feet high is an awful "fence," and Mr. Reasoner felt sure the fence was only about *fifteen* feet high; but Miss Wyman says she thinks 38 feet is correct. She says it is a tremendously big tree, and the fence went up nearly to the top. As the avocado does not stand much frost I have been wondering if this fence were not, at least originally, for weather protection as well as to keep out thieves.

The alligator pear has been grown more or less in South Florida for 20 years or more. Reasoner says of it in his catalog, "The most valuable fruit in the American market." Until quite recently it has been out of season when we got here in November, but now we have a variety called "Trapp" that ripens from November to January, and I am pleased to tell you that we have three trees, now growing in our garden, that cost $2.00 each, catalog price. I have given you this story after finding it is substantially true, because it illustrates so vividly the *possibilities* of agriculture and horticulture. Of course it remains to be proven that buds from this wonderful tree will produce in other localities as the tree does in its California home; but we shall soon know about this.

As I write, this evening of Dec. 8, I realize that in a few more hours I shall be 75 years old. As Mrs. Root was about to retire we have just knelt together, and I have thanked the kind Father that he has permitted us to live thus long, with physical strength and activity almost unimpaired. I thanked him, too, for the progress I have been permitted to see in giving hungry humanity better and more nourishing fruits and vegetables, and also the better and greater results* for those who till the soil. I can easily recall when tomatoes were unknown as an article of food, and yet *now* the growing and putting them up for a wholesome and nourishing food is a great world-wide industry. I might say almost the same thing of celery and many other things. Our Department of Agriculture is just now "ransacking the whole wide world" to see if there are not somewhere, heretofore unnoticed, things that are better than what we have already. What a glorious thing it is to have a part, just a little part, in helping to bless humanity after we are gone! If I am right, the good man who gave us the Concord grape was scarcely recognized and remembered until after his death. Once more, what a "glorious thing" it would be if all humanity and all nations were working in harmony and brotherly love to *hunt up and develop* "God's gifts" heretofore unknown and unrecognized, instead of seeking to destroy each other!

FORTY-FIVE CENTS EACH, WHOLESALE, FOR TRAPP AVOCADOES.

While giving place to the clipping below, let me say the avocado trees in our garden are of the Trapp variety. They came from Miami in wooden boxes about a foot square (like potted plants), and cost $2.00 each.

RECORD PRICE FOR AVOCADOES.

Miami.—Forty-five cents each for avocadoes. This, it is believed, is absolutely the record price ever received in the wholesale market for this fruit, and was paid in Chicago for a crate of Trapp avocadoes raised in the Miami Beach orchard. A telegram received by T. J. Pancoast, secretary of the orchard company, yesterday afternoon contained the information that $21.00 had been received for the crate. Investigation of the records showed that there were just forty-six avocadoes in that crate, which makes their price a fraction over 45 cents each.—*Fruit Trade Journal*, New York.

MAILING DASHEEN TUBERS ACROSS THE OCEAN, ETC.

Mr. Root:—Noting your trouble in sending dasheens by mail across the ocean, there is no trouble provided you dry the tubers about ten days in a dry shaded place, then pack in perfectly dry excelsior. We ship a good many caladiums, etc., in this way.

English walnuts have turned out failures in Florida; also are subject to root-knot. They do not like our long warm and humid summer. We are about 500 miles too far south for them, as they will grow moderately well in the upper part of the southern states.

Oneco, Fla., Jan. 11. E. N. REASONER

We have recently had reports of tubers going even to South Australia and then germinating. We too have failed here with English walnuts.

* You have all noticed, more or less, what the "corn boys and girls" have done in developing possibilities.

TEMPERANCE

RUSSIA; ITS EMANCIPATION AS THE RESULT OF THE WAR, ETC.

We clip the following from the New Britain (Ct.) *Herald:*

DRUNKEN RUSSIA TO SOBER RUSSIA.

This terrible war raging across the seas has been a series of astonishing happenings. None, perhaps, has been more unexpected than the complete abolition of the liquor traffic in Russia. The prohibition of the sale of alcoholic drinks was a temporary war measure to prevent disorder during the mobilization of the army, which was a powerful acknowledgment that alcoholic drinks are a disturber of peace and an excitent to the worst passions of human nature.

At the end of a month the transformation from drunken Russia to a sober Russia was such an illuminating lesson in favor of absolute prohibition of the sale of intoxicating drinks that the Czar, in answer to a solicitation from the president of the Russian Union of Abstinence, that the sale of spirituous liquors be forever discontinued, replied:

"I thank you. I long ago decided to interdict for all time in Russia the sale of alcoholic drinks by the government."

George Kennan, the proficient critic of Russia, says in the *Outlook:* "For the first time in the history of mankind one-seventh part of the habitable globe has gone dry, and 170,000,000 people have stopped drinking intoxicating liquor. For many weeks the sale of vodka has been completely suspended, and the whole population has looked at the European situation through absolutely sober eyes." Our own government, which prides itself upon its advanced civilization, would do well to pause and ask itself if its boasted moral superiority can be maintained in the face of this grand step taken by the Czar of all Russia who has banished from his empire an evil that has not one redeeming quality, but is an unspeakable and unqualified menace to the peace and happiness and prosperity of every nation within whose gates it is tolerated.

The revival of industry, thrift, and self-respect which so quickly followed the suppression of the liquor in Russia was an object-lesson which the Czar of Russia was keen enough to perceive, and great enough to accept and apply to the good of his people; and herein lies his superiority over all other rulers of the world. It was the Kaiser of Germany who, not many months before the war began, said that the nation that would rule the world would be the nation that abolished the liquor traffic. This war has revealed to the world a new Russia in more ways than one, and the world may well tremble before a sober Russia. Mr. Kennan, who has long studied Russia at close range, says: "In the list of Russia's spiritual awakening, the spontaneous and universal welcoming of prohibition as a great national blessing for which everybody is ready is not the only proof of her extraordinary growth," and adds, "If the war should do nothing more than free Russia from the curse of vodka it would be worth all that it can possibly cost in treasure and life." Must our own beloved country pay such a price to become a sober nation? We may rest assured that the Kaiser's opinion was not based on an idle dream, but upon hard common sense and a knowledge of the degenerating influence of alcoholic drinks.

Do not we as a nation need as keen human efficiency as the ball-player? In *McClure's Magazine* Connie Mack's management of his ball team is good logic for the government of a people to follow, and Russia has followed it. Connie Mack says: "Keep in mind *that steady—'moderate'—drinking gets a ball-player in the end* just as sure as boozing alcohol slows a man down inevitably, and slowing down is the reason for the shelving of by far the majority of players." He also says, "You ask me why the world's champions have done so well. I have to answer: Because of the kind of lives they lead, and their consequent ability to think and act quickly in an emergency. It is not a matter of morals to our club, but of human efficiency." *Are we to require less efficiency in our legislators* than is required in our professional sports? It is a fact that on the "hundred thousand dollar infield" not a man has ever known the taste of liquor. Why not apply the same rule to our senators and representatives? Do we not need as high an efficiency "to think and act quickly" in our law-makers as in our ball-players?

The fact of it is, we have not brought to bear the same intelligent common sense in choosing our law-makers as the manager of the field of sports has in the choice of his players; hence the colossal failure of our democratic government. Lastly, listen to these sensible words of Connie Mack: "From the standpoint of the public—the people who pay their 25, 50, 75 cents or a dollar to see good baseball, they are entitled to see the player at his best—not slowed up by drink." Are the tax-payers of America entitled to less? The Kaiser of Germany was right. The nation that dominates the world will be the nation that is not slowing up through drink. Russia dominates the world to-day in spiritual superiority. She has recognized the right of her people to a government not crippled by alcoholic drinks.

America should have been the nation to set the world this lofty stand—and—alas! she has failed just at her most boasted point—her moral and spiritual superiority. Russia will ever stand on the pages of history as the first nation to break the shackles of the liquor traffic from off her people. The great man is he who seizes the opportunity and crystallizes it into a living fact. The Czar of Russia stands at this hour the greatest man among all nations.—*Marinda C. Butler Robinson.*

A FORETASTE OF HEAVEN.

A country vicar, writing in the *Novoye Vremya,* says of the changed conditions in Russia under prohibition:

"The old women in the villages can hardly believe their own eyes and ears, so changed are their menfolk. Not a hard word, not a row, but everywhere peace, kindness, and industry. War is said to be hell; but this is like a foretaste of heaven."—*Union Signal.*

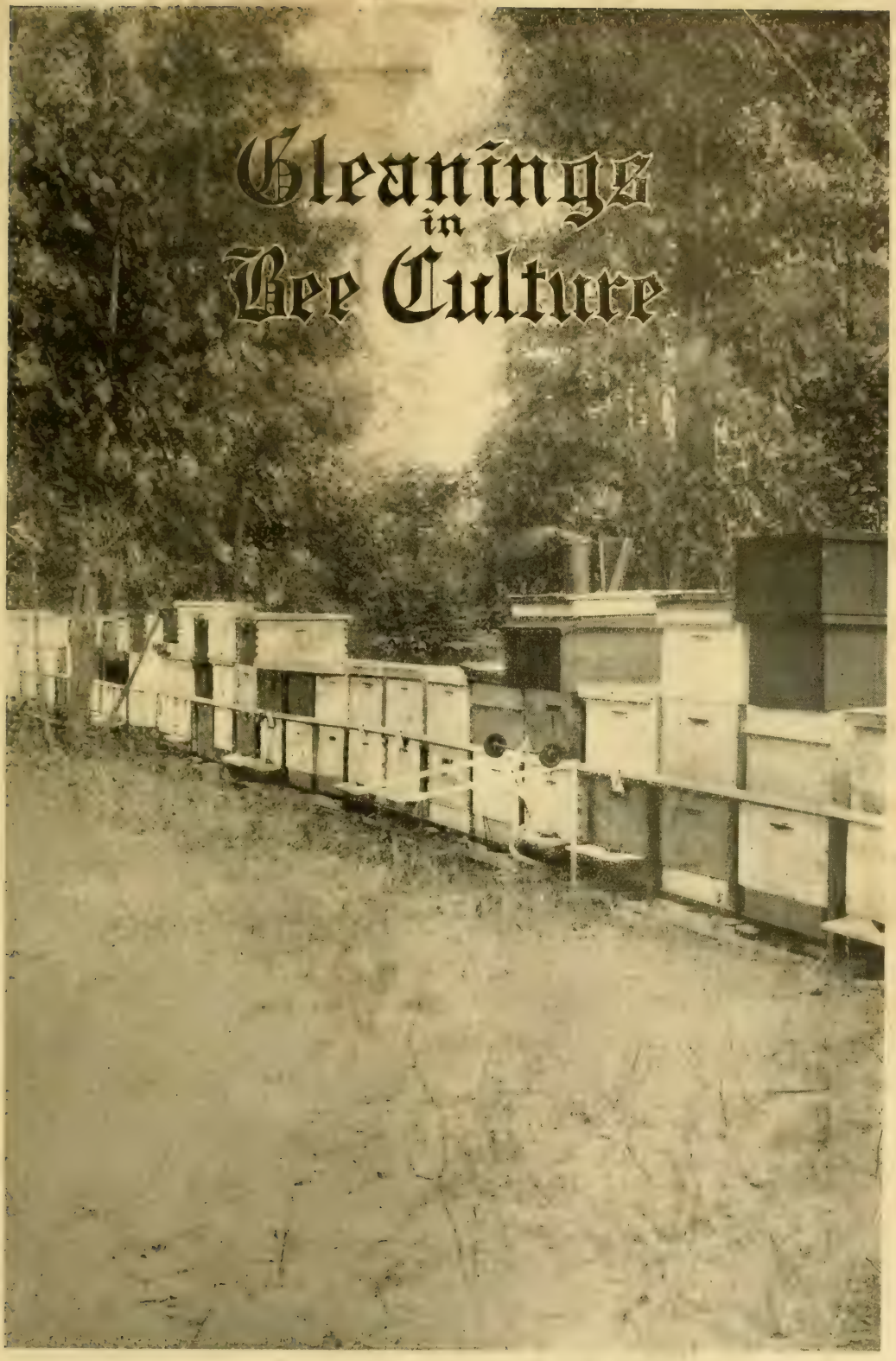
TOY PISTOLS, ETC.

Mr. A. I. Root:—GLEANINGS came in to-day; and, as I always do, I turned first to your letter and then the article following; and to the letter from Chas. R. Hill I want to give my support. I have only one boy, 13 years old, and, of course, I think more of him and of my 78-year old father than of any other man or boy living; but I have never loved him well enough to buy for him a toy pistol. I think a father's love should run in an entirely different channel than that of pistols for his boys.

I hope you will enjoy the winter in Florida, and live many years yet to keep mankind in the straight and narrow way.

Lake Butler, Fla., Nov. 19. CHAS. H. REGISTER.

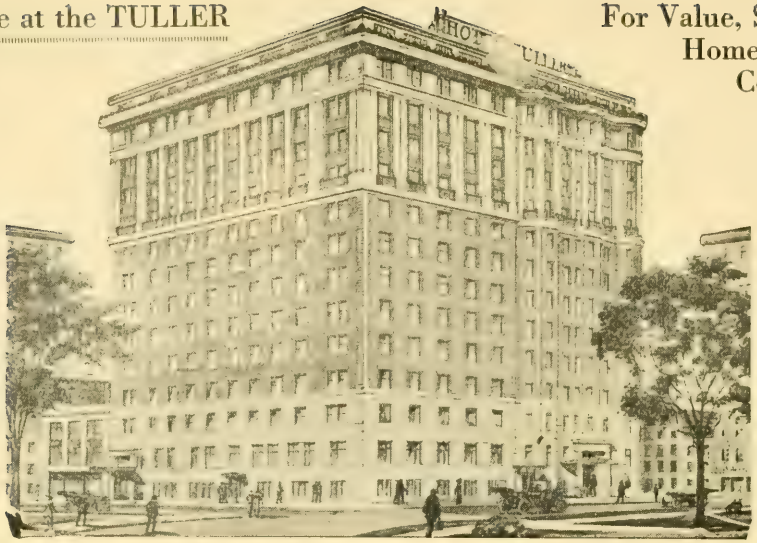
Gleanings in Bee Culture



Vol. XLIII MARCH 1, 1915 No. 5

Meet Me at the TULLER

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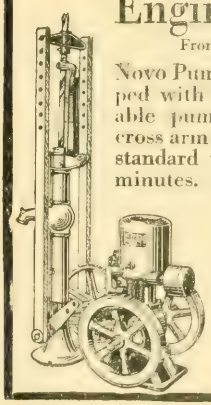
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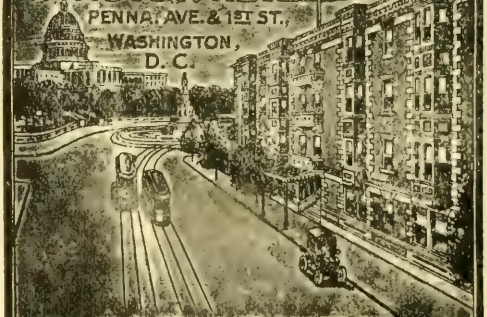
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EDITORIALS

Granulated Sugar Going up Again

Shortly after the opening of the Great War, sugar rose to nearly 9 cents. Since that time it sagged until it finally got down to $5.25 per 100 lbs. The latest report, however, shows that it is again taking a sharp advance. This was rather to be expected. This will increase the outlet for cheap honey.

Our Cover Picture

Our cover for this issue shows the apiary of Wm. Beucus, Cadott, Wis. As described in his article on another page the hives are arranged along a steel track and by means of a small car or truck the supers may be pushed along to the honey-house without much effort.

Doubtless the average man will feel that a wheelbarrow or two-wheeled cart that can carry eight or ten supers at a load would be a simpler proposition, taking every thing into consideration. Nevertheless, the plan is an ingenious one, and we are sure the readers of Gleanings would like to have a further report of it after it has been tried another season.

Steam-knife Boiler Burst

A beekeeper using a ten-pound pail as a boiler for his steam uncapping-knife was severely burned on the arm by the bursting of the pail, due to the small hole, in the end of the knife for the escape of the steam, being stopped up. So far as we know, this is the only accident of the kind, yet possibly a word of caution might not be out of place.

In ordinary use the opening in the point of the knife will not become clogged up. Sometimes, however, if the knife is used to poke away the accumulation of cappings in the uncapping-can, or melter, there is some tendency for the hole to become filled up—especially so in case of the melter, as melted propolis or wax may be forced into the opening. It is better to use a stick or wooden paddle for this kind of work.

Before using the knife, blow through the tube to make sure that the opening in the end of the knife is clear. If you have forgotten to do this, and the tube is already attached to the boiler, you can easily ascertain whether the opening is clear by placing the point of the knife in your mouth and sucking the air out of the knife. The safest way, however, is to blow through the tube before attaching it to the boiler.

Beekeeping vs. Spraying in Bloom

The Massachusetts Board of Agriculture will shortly issue a poster indicating the proper time for spraying fruit-trees and showing that, while trees are in bloom, it is not only ineffective as a prevention against fruit-pests, but directly dangerous in some cases, being liable to spoil the blossoms and to cause the death of bees, thereby greatly reducing the amount of fruit set. It is hoped to have ready shortly thereafter, for general distribution, a more extended circular or bulletin on this subject. The poster is intended for use in public places. Both poster and circular can be obtained as soon as issued, by addressing the Honorable Secretary of the State Board of Agriculture, 136 State House, Boston, Mass.

Snow, Plenty of it, this Winter, Presages Well for the Beekeeper in the Clover Districts

This winter so far is proving to be one of the old-fashioned kind, with a large amount of snow. In a recent trip through the East, we found that snow had fallen all over Virginia and the northern and eastern states, and is and has been very plentiful in Ohio. Much snow during the winter is a better guarantee for a good crop of clover honey than any other one thing. Experience shows that clover is more apt to fail after an open winter with alternate heaving and freezing of the soil, with little or no snow, than under the opposite conditions. One reason why northern New York,

Michigan, northern Illinois, Wisconsin, and Minnesota will produce clover honey when those parts of the country further south will not is because they have more snow. It has been shown that Ontario, Canada, will very often produce a crop of clover honey when the season will be almost an entire failure in Ohio. The former has snow when the latter does not. Well, we are having a large amount of snow this winter, and this is one of the most hopeful signs we can have that there will be a good crop of clover honey providing a drouth does not come on in late spring or early summer. Without such a drouth a clover crop is assured.

Another thing, snow assists materially in the matter of wintering bees when placed outdoors. See what J. L. Byer says on page 97 of our last issue.

The Massachusetts Convention

FARMERS' week at the Massachusetts Agricultural College at Amherst, March 15, 16, and 17, is to be featured by the Massachusetts Beekeepers' Convention and Apiary Inspectors' conference. A program and information may be secured by addressing the Extension Service of the Massachusetts Agricultural College.

Dr. Burton N. Gates will open the convention with an address on "Honey Products for Massachusetts," and on the following day will explain the Massachusetts wax-rendering service. Rev. D. D. Gorton, of West Springfield, Mass., will talk on swarm-control measures as practiced in Michigan. Geo. B. Howe, of Black River, N. Y., who has spent years in developing a race of bees, will explain methods and results. One of the most unique addresses will doubtless be that of C. C. Dowdey, entomologist from Uganda, East Africa, who will talk on beekeeping in that little-known region. Dr. H. P. Fernald, J. L. Byard, and G. H. Cale, all of the agricultural college, will give talks respectively on the following subjects: "Orchard Spraying Practices with Relation to Beekeeping;" "A Procedure for Late Fall Queen-mating;" "Experiences in a New York State Commercial Beeyard."

On Wednesday, March 17, the second convention of apiary inspectors in eastern United States will be called. The program will be open to all interested with a session for official inspectors, and speakers will be selected from the inspectors and authorities who may be in attendance. The subjects proposed comprise the methods and duties of inspectors, ways of combating European and American foul brood, and other bee diseases, transportation problems in relation to the spread of these infections, and resistance of race, variety, or strains of bees in European foul-brood suppression.

Doubtless the subject of spraying in relation to beekeeping will come up for consideration since it is very closely associated with apiary-inspection work, and is quite a prominent point in the minds of beekeepers in eastern Massachusetts to-day.

The National Convention at Denver

THE National Beekeepers' Association convention in Denver was a more harmonious gathering than for some years past. The delegate sessions were handled with dispatch, and a better understanding among all the naturally diverse interests was evident.

Twenty affiliated organizations were represented, and the physical fact of separation by wide expanses of country and the resulting altered conditions made absolute harmony of interests impossible. There was, however, a spirit of compromise manifested, and it was apparent that things have been given a decided turn for more harmonious action for the future.

The publishing of an official organ and the carrying on of the business features has been apparently happily adjusted, and there seemed to be a general feeling that the result will inure to the satisfaction of all concerned.

Those of the National affiliated organizations that are more vitally interested in the business features will doubtless arrange to incorporate an auxiliary corporation with a capital stock that will assume the management and control of *The Beekeepers' Review*. While this organization will be separate and distinct from the National Beekeepers' Association proper, the relation between the two, it is believed, will be friendly and voluntary.

The Review will remain the official organ of the National Beekeepers' Association as before. Each organization, however, reserves the right to discontinue the official recognition of the other. But as both will be made up of National members to a great extent the relationship seems likely to be permanent.

The business sessions were entirely separate and distinct from the other sessions for the consideration of papers and general discussions. The former were held at earlier periods; and, while they were open to the public, only delegates had a vote.

President Gates showed that he was a good presiding officer in that he didn't hesitate to use the gavel when occasion required.

At the general session a good many matters of importance were discussed. In our next issue we hope to give a very brief synopsis of the most important, and possibly a picture of the convention.

On the evening of the 17th, in the auditorium of the hotel, the Colorado Honey-producers' Association gave a banquet to the members of the National Beekeepers' Association. Dr. E. F. Phillips, of the Department of Agriculture, Washington, D. C., acted as toastmaster, and a good one he was. There were over a hundred plates set, and the music and toasts were of the very highest order. There were frequent bursts of applause and laughter. The affair was a success in every way; and on behalf of the guests Dr. Phillips suitably expressed the thanks of the National to the Colorado Honey-producers' Association for the splendid entertainment.

The following officers were elected:

President, Dr. B. N. Gates; vice-president, Frank C. Pellett; secretary and treasurer, Wesley Foster; directors, E. D. Townsend, E. J. Baxter, J. H. Stoneman, E. G. Carr, Geo. W. Williams.

Caucasians and Other Black Races Adapted to the South on Account of their Early Breeding

MR. J. J. WILDER in the Feb. 1st issue, p. 69, speaks in the highest terms of the Caucasians, and he wonders why it is that the editor has had so much trouble with their bad swarming when neither he nor his customers have had any such difficulty. It is true Mr. Benton did speak of their swarming rather to excess, and we found them to be even worse than Carniolans. Possibly we had a bad strain of them; but although our Caucasians came from different sources, they all behaved alike.

The question whether they swarm to excess or not should not be given too much consideration. The *real question* after all is, "Are they *money-makers?*" We quite agree with Mr. Wilder that they are excellent for building up in the spring—better than Italians perhaps. The same may be said of Carniolans. It appears at this writing that the Virginia brown bees, or what might be called the old-fashioned black bees, are ahead of Italians in this respect at our Virginia apiaries.

This matter of early building up is certainly a valuable feature; and for beekeepers in the South, and perhaps in other localities, it is a factor worth considering.

During these war times it would be very difficult to import Caucasians, for the regions where they are bred, in the extreme southwestern part of Asiatic Russia, are in the midst of the heaviest fighting at the present time. We have none in stock at our yards. In fact, we were compelled to discontinue using them in this locality on account of their swarming propensity which with us was intolerable.

We are coming to believe that the black strains, be they black bees, brown bees, Caucasians, Banats, or Carniolans, will breed up better than the pure yellow strains. The fact that blacks seem to be the *persistent* and *dominant* race would indicate that they must be a strong race capable of standing severe winters. The yellow strains of bees are essentially a tropical race, while the blacks—at least many of them—come from comparatively cold climates.

An exception should be made, however, in favor of the leather-colored strains of Italians that come from the mountainous regions of Switzerland where much the same climatic conditions prevail as are found in northern Italy. So far we have found these leather-colored bees come through as well in severe winters as the black; but we shall have to admit, when all is said, that they do not breed up quite as rapidly.

How the Bees are Wintering Outdoors in those Big Winter Cases

TO-DAY, Feb. 12, the weather has moderated enough so that the temperature has reached 50 degrees F. There has been no sunshine, and no bees flying out. Part of our bees outdoors were put in quadruple packing-cases of the Holtermann type, a part in the regular Root double-walled packed hives, and a few (only four) in single-walled hives containing the double telescope cover. The showing in quadruple packing-cases is excellent with this exception: In the case of a very few of the strong colonies the packing material had crowded the entrance cleats over in such a way as nearly to close the entrance but not quite. In front of these hives we found large numbers of dead bees, and the entrances practically closed with their dead carcasses. On opening up the hives we found the colonies overheated and excited for want of ventilation. Had we not arrived at just this time to clear the entrances they probably would have died in a day or two by worrying to get out, and they may succumb before spring, as it is. The entrances were partly closed on some of the weaker colonies; but as yet they seem to be all right. We enlarged them all to full size after clearing them out.

Examination of the colonies in the individual double-walled packed hives showed that there was unquestionably a greater mortality. In fact, about 30 per cent of the colonies were dead outright. On opening up the hives we found the clusters actually starved to death, with plenty of stores within two combs' distance, either on one or both sides, because the weather remained cold so continuously.

In the quadruple packing-cases we found no such conditions. Not a single colony was dead, and on the day of our examination the bees were spread over the combs as they would be in the summer. The ten or twelve inches of packing all around is undoubtedly warmer than two or three inches of packing.

There is another condition that may not be all in favor of these big quadruple cases: The bees were so warmly packed that the clusters apparently never really formed except in extreme zero weather. The danger is that this condition will lead to brood-rearing prematurely, sap the vitality of the bees, and possibly weaken or kill them by spring. The question is, then, "Is it possible to overdo this matter of packing?" There is a certain advantage in having a colony during winter in a nice compact cluster. In that condition there is less activity, less consumption of stores, and no brood-rearing. Such a colony, we know, will winter well. Now, then, will the colony that never clusters all winter, or seldom does so, do as well as one that is in a compact ball practically all winter? The sequel will show this spring.

We have examined the colonies in single-walled hives at our home yard. They were powerful colonies early in the fall, and are showing up nicely now. Indeed, their cluster formations are ideal. When we go from one of these hives into one of the colonies in quadruple packed cases we find the cluster not formed but scattered; but the bees under the glass covers seem to be perfectly healthy, and appear to be just about as they look in summer. One thing we know is there are a good many more bees in front of the single-walled hives than those that are packed. This fact is plainly noticeable. It is easy to see that there is a continuous decimation of the unpacked colonies; and if this continues long, the balls of bees will grow smaller and smaller, and finally die.

As previously related, we have sixty colonies packed in quadruple packing-cases at the Blakeslee yard. The colonies in diagonally opposite corners of the cases are covered with sheets of glass the full size of the top of the hive not sealed down. The other two colonies in the same case, also diagonally opposite, are covered with wire-cloth screens, the same as are used in moving the bees in summer. Over this screen is placed a sheet of burlap, and over the whole about ten inches of planer-shavings.

It will be readily seen that we have a condition of semi-sealed covers in one pair of colonies, and full upward ventilation for the escape of moisture for the other pair, both in the same case. Over the colonies with upward ventilation we find moisture in the packing. Over the hives covered with glass there is no such moisture. The relative difference between the two sets of colonies is not great; but the difference, so far as we can determine, is in favor of the semi-sealed or glass covers. Of course there is no particular merit in glass other than it affords us observation without much disturbance, the same as through the wire cloth.

Our Mr. Rea says that when the weather is extremely cold he has observed repeatedly that the colonies in these cases having upward ventilation during and between the cold spells, with the mercury around zero, will form into compact clusters, while those under glass are nearer the top than the clusters that are less compact. It seems very clear to us that the semi-sealed cover makes a warmer housing for the bees. We shall give reports from now on till spring of the relative conditions of the bees in all the various packings.

N. B.—Saturday, Feb. 13, was warm and balmy. The bees flew as though it were spring. The colonies in the large packing-cases were examined, and found to be in excellent condition. There seems to have been no bad effects from the clogged entrances as mentioned above. A few colonies were opened, and we found the queen just beginning to lay a few eggs, evidently from the stimulus of the warm day and the consequent activity of flying. We did not find brood in all stages as we expected. It is very evident that they did no brood-rearing during the extremely cold weather, in spite of the fact that they were so warmly housed.

The cellar bees are becoming a little restless, and a few more of them are showing signs of dysentery. All those that were spotting the alighting-boards at the entrances of their hives were placed out on Saturday and given a good cleansing flight. We are now waiting for a warm day when they will all be hustled out and allowed to clean up.

Later.—That warm day came Saturday, Feb. 20, when all the bees were carried out for a good fly.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



R. F. HOLTERMANN, p. 143, you say you never had combs melt down in hives with fence around. Years ago I had them melt down in dense shade with no fence, only close shrubbery; *but* my entrances at that time were ½ inch or less.

ANSWERING a Wisconsin correspondent, I may say that my bees in the cellar are never entirely quiet. There is always at least a gentle murmur, something like a soft breeze through pine-trees. I doubt if it's possible or even desirable to have utter silence.

MR. EDITOR, are not you and T. H. Holmes talking about two different birds, p. 38? The bee-martin, or king-bird (*Tyrannus tyrannus*), as you say, is a bee-enemy; but the purple martin (*Progne subis*), the one that lives in martin-houses, is not, I think, an enemy.

GLAD to know, Mr. Editor, that you've taken on the grapefruit "habit," p. 144. I'm living with two "grapefruit fiends." They take it every morning "reg'lar," and other times when they feel like it. It's cheaper than medicine, and a heap easier to take. We don't spoil it with sugar, either.

"A CURIOUS thing about the alligator pear is that it is worthless if permitted to ripen upon the tree," but must be "laid away in a dark place to mature," p. 170. Not so curious either, seeing it's the rule with all pears, except Buffum and a very few others. Always pick pears fairly green, and ripen in the dark.

"HELLO, Poppleton! you've got the same old phiz, haven't you?" That's what I said when I opened up to the pictures, pp. 144-5. It is said, p. 146, that he has followed the Long-idea plan these many years "almost all alone." True, if you confine it to this country. But he has lots of company in Europe—good company too.

W. C. MOLLETT, p. 165, because you disturbed bees in winter and they outlived it, don't count too safely on it always. I've had them live after such disturbance, and I've had them die, with pretty clear proof that the disturbance killed them. A few pages earlier (p. 134) the editor says: "A broken cluster, then, in cold mid-winter is a very bad sign. It is evident that the bees are demoralized and the end is near." And disturbing the bees is likely to result in "a broken cluster."

J. L. BYER, p. 97, you have little fear of American foul brood, but dread European foul brood. Just the opposite here, perhaps on the principle that we dread the unknown. At any rate, in 1913 I got the best average yield of my life, and in 1914 an average of 70 pounds when all about me was failure, and in both years European foul brood was in my apiary. If ever European foul brood makes you a visit, I prophesy you'll learn two things—that requeening with good Italian stock is not a remedy but a help, and that there are other remedies worth using.

GARDENER B. WILLIS thinks decoy hives must be set in a very conspicuous place, p. 80. With me I don't believe any place is better than right in or about the apiary. Last summer my assistant put a decoy hive up in an apple-tree in the most orthodox manner. It was let severely alone, while nearly every year one or more swarms from outside enter empty hives in the apiary. Hardly a day in summer but scouts may be seen at empty hives, no doubt from colonies in the apiary; but as we are constantly thwarting them they never get beyond the scout stage. Outside bees do.

THE long deadlock in the Illinois legislature since the first of the year still continues. There are four camps, the wets and the drys, in each of the two parties, and no candidate for speaker can get a majority of votes. The leaders of the two parties want to ignore the wet and dry question, and the leading wets and drys want to ignore party lines, and so they get nowhere. Latest prospects are that a bi-partisan combination may elect a wet speaker—possibly a good thing. The issue would then be squarely made, and it might bring state prohibition sooner than any other way. [We note from a late paper that this is just what took place.—ED.]

GLEANINGS is to be congratulated on the stand taken about advertisements for queens, p. 9. One thing needs to be said that budding queen-rearers don't always think about. A advertises that he can furnish certain queens at a certain time. B sends an order with the money. B waits past the time, but no queen. Then he writes. A replies that he's behind orders, and if B can't wait money will be returned. Then A thinks he's not at all to blame, and says he's done the best he could. But the delay and disappointment may be more than the value of the queen, and A is to blame for agreeing to do what he couldn't carry out. Honest advertising is coming to the fore, and it should be honest in every respect.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



J. E. Crane hints that it takes great care to make hard candy that will give perfect satisfaction, while A. C. Miller says, page 977, Dec. 15, "any lively youngster" is supposed to be able to do the trick. How do you feel now, Mr. Crane? Personally we had no trouble making "hard candy;" but the trouble was that it did not suit us, or, rather, the bees, after it was made.

* * *

When the National convention was held in Detroit a few years ago I had the pleasure of meeting and conversing for about half an hour with the late Mr. Bingham whose death was chronicled in GLEANINGS for Dec. 15. My first and last personal meeting with him has always been remembered with pleasure, as I was impressed with the fact that he was a real gentleman —one of nature's noblemen. Steadily we are losing our old landmarks of beekeeping; and since I have had the pleasure of attending conventions—not so many years either —it is rather sad to recall some of the names and faces of men we once learned to respect and in many cases really loved.

* * *

February 8.—Moderately cold. We are having fine winter weather, with no extremely cold snaps, for the past four weeks. There are mountains of snow in roads and other exposed places, while I should judge we have about 18 inches on the level. This looks good for the wintering of what little clover we have, as well as the winter-wheat crop—the latter, no doubt, more important at the present time than the clover, as the cry to the farmers during this awful war period is, "Produce more wheat." Bees have had no flight, and of course may go six or eight weeks yet before having a chance to cleanse themselves. Prospects are none too good for wintering, as no late flight, small clusters, and poor stores combined in some places do not make best conditions for the bees. A few colonies in my own yards show unmistakable signs of dysentery, which is bad here in Ontario for this time of the year.

* * *

Some time ago the editor rather jollied me for wondering why beekeepers in Ohio and other places in the same latitude have trouble sometimes in wintering their bees outdoors while here in Ontario, where we often have a period of four months or more when our bees never have a flight in the majority of seasons, we have fair wintering. The main "jolly" came in because I referred to Ohio as being "warmer" than it is here. Of course I was told all about those damp cold winds off the lake, and the changeable weather, and the opinion was really given that bees have a better time up here than they have further south. Perhaps they have sometimes; but how about a season like this? As before stated, our bees have had no general flight after Nov. 1. Clusters are smaller than usual, and in many cases some inferior stores are in the hives. As a result, as already intimated, our bees need a flight badly, and there is just a bare chance that they will not get one for weeks yet. A friend not far from Medina, O., wrote me early in January that his bees had a number of good flights in November, and also had two or more splendid flights late in December. I have had no word since; but I suppose that, during the mild spell in January, the bees would fly freely again in that month. Now, won't the editor admit for once that he lives in a "warmer" climate than we do here in Ontario?

* * *

As to those big quadruple cases you are trying out, of course you will get good results—no question about that, as they are used by a number of our very best men in Ontario as well as in other places where the winter grows very cold. As a rough guess I would say that half of the bees wintered outside here in Ontario are thus housed, as men like Holtermann, Sibbald, Miller, and a number of other extensive beekeepers use the method exclusively. In the face of all this it may seem like presumption on my part to say that I do not like them, and much prefer the single-colony hive, permanently packed. We are told that, with four colonies together, the heat will be more conserved, and that the bees will winter better than in the single-colony packed hive. While it seems reasonable, yet in my experience this so-called advantage is simply a "talking-point" as an agent would say. After wintering dozens of colonies in single cases year after year in the same yard beside cases holding two and three colonies each, as I had at this place, I never could see a bit of difference in results. The large cases are so bulky that it is almost imperative to have a man with one to do any changing around; and as I am usually alone in the yard during spring and fall, the single hive, double-walled, is the one I want. And

yet I will have no quarrel with the fellow who wants to winter four (or twenty-four, for that matter) in the one case.

* * *

Candy-makers tell me that it is a necessity to have a candy-thermometer in order to be sure of having a uniform product one time with another; and in this connection I might say that, only a few days ago, we received 25 pounds of candy made specially for bee feed, from one of the large confectionary firms in Toronto. This can be bought for about 10 cts. per lb.; and if it is as good as I have been told it is, I would rather pay that price than make it myself. With J. E. Crane I think candy-feeding is more of a fad than any thing else, and I seldom have any need of it since good syrup answers all my purposes nicely when bees are short of natural stores.

* * *

On page 46, Jan. 15, old covers are mentioned as used for alighting-boards in front of those big cases shown on the cover page. I'll tell you something better than that, at least for our locality, where snow and ice pile around the winter cases during winter. Have no board in front at all, and leave a perfectly straight hive-front right down to the ground. With a sloping board up to entrance, snow and ice, particularly the latter, will often be likely to give trouble, and I find the straight front very much preferable. Of course the hive-stand fills in space directly under the front of the cases, so that there is no danger but that chilled bees can crawl up just as well as they could with a regular alighting-board.

* * *

F. M. Baldwin asks on page 67, Jan. 15, if any one has had experience in introducing queens by first daubing them with honey and then placing them right with the bees. Like many other new(?) ideas this one is as "old as the hills," as they say. I remember seeing my grandfather do this when I was but a wee kiddie. I have used the plan once in a while myself, generally when coming across a queenless colony at an outyard, and when I had a queen to introduce and was in a hurry. As nearly as I can remember correctly I have an idea that as good results were obtained on the average as with any other plan; but it always seemed a rather mussy way in which to treat a nice queen. After all, it might be as good as any way yet given, and no one can say but that the plan is easy. There is no danger of the beekeeper not following directions implicitly, and thinking he knows better than the originator.

The push-in-the-comb-cage method of introducing queens, page 922, Dec. 1st, is as "old as the hills," but nevertheless one of the surest plans ever given to the public. My grandfather used the plan at least forty years ago—probably longer, and some of the original wire cages are still to be found. He made the cages larger than those commonly used, many of them being from four to six inches square. We always aimed to squeeze in the sides of the cage so that honey and hatching brood would be covered. In a day or two scores of young bees would be hatched and free with the queen; and I have often found every available empty cell filled with eggs before the queen was allowed to run at large. But, good as the plan is, we rarely use it now unless we wish to be very careful about a particular queen. Why? Simply because of quite a lot of work; and I am afraid that this feature, coupled with some other objections, will cause the plan to be rejected by most amateurs, even if it is recommended, instead of those methods of introduction now in vogue. The queen must be taken out of the cage. Most beginners will dread that operation to start with. Even when working in a closed room, which is imperative, now and then a queen will get away from the cage to the window, even if she does not happen to get behind some furniture. This means catching the queen, and this operation is again dreaded by very many, as, in their eagerness not to hurt her, they are all the more likely to do so owing to nervousness. Then the comb of brood and honey must be taken from the colony. Many amateurs would dread that operation too. The queen must be placed on one side of the comb alone, and then the cage must be placed over her, the sides of the cage being pressed into the comb right to the septum if one wishes to avoid having the bees liberate the queen too soon. In pressing the comb in I have known it to be done so forcibly that the cage would "press" the queen to death, especially if the comb used was a very old one and tough with many cocoons.

Assuming that all the foregoing difficulties have been overcome effectively, in three or four days it will be necessary to examine the comb; and if the queen is not already released, punch a hole from the opposite side of the comb or lift the edge of the cage. All these details are given to back up my contention that the method will never be accepted by the majority of those who buy queens when other plans, although not as uniformly successful, are fairly reliable and much more easy to practice.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The condition of the sages is much better than I had hoped for.

* * *

Prof. Cook at our state convention said he had no doubt that Adam and Eve had bees in the garden of Eden. Mr. George Emerson asked what material Eve made the bee-veils of.

* * *

While we are having raisin, orange, and grape days, each of which is designated as a day for every one to eat the certain one of these commodities in question, why not include honey?

* * *

A gentleman from New York city was transferred to our local postoffice force. One day the subject of honey came up, and the other employees were surprised to hear him say he had never tasted it.

* * *

There is nothing that will describe the weather conditions of the present better than to say that California is now being drenched. The rainfall to date, Feb. 13, is above normal, with an average of nearly 15 inches.

* * *

Do not try to save fertile-worker colonies. Unite them with other colonies that need the bees. This may be done quickly and safely by setting them on top of other colonies with a sheet of newspaper between the two. The paper will be removed by the bees, and perfect harmony prevail.

* * *

A colony containing a large amount of bees at this time in the season can often be used to equalize the force of a less populous colony by changing it to the latter's hive-stand. This plan should not be used so late in the season that it may interfere with the working force of the stronger colony.

* * *

J. L. Byer complains of his bees not having a flight since in October. It is my opinion that our California bees would be a little more numerous during the winter if they were confined more closely to the hive. The loss by chill would be greatly reduced. To-day, Jan. 23, the temperature was just at a point that encouraged the bees to leave the hive in quest of stores, which are available to some extent; but many were so chilled that they were hardly able to complete the return flight. In fact, on the cement walk over which a part of the flight was directed I found several cold and stiff, unable to reach the hive.

* * *

If not already done, the queen-excluders should be removed to allow the queen all of the room in both chambers for laying. Replace them ten days to two weeks before you expect to extract, care being used to avoid shutting the queen down in a honey-bound brood-chamber. She should have all available room that ten frames will give, for laying. If honey is coming in freely, and the side combs contain much honey, place them in the upper story and insert full sheets of foundation in their place.

* * *

As to whether or not it is profitable to save bees from bee-trees, Mr. Elias Fox takes occasion to say that my ideas on this subject were guesswork. Badly mistaken, Bro. Fox. I should not be surprised if I have not cut as many bee-trees in the East as yourself. Besides I have dug them out of rocks, taken them out of houses, trees, transformer boxes, chimneys, and from under houses in this state. Yet, counting every thing, I believe I am the loser. It is an easy matter to make a success of cutting from trees if you are going to take them home as you describe, and put them on frames of sealed honey. There is a stubborn idea in my head, however, that I could cut out four or five nuclei from my own hives, with as good results, while you were cutting your tree.

* * *

Mr. L. W. Brown, page 126, Feb. 1, says: "Out in California is a beekeeper who has kept bees (as well as moths) for over thirty years in the same yard." Just one, Mr. Brown? Well, out in California are some of the most progressive beekeepers in the world who do not take a back seat for anybody. California is a state filled with beekeepers with large apiaries, and richer in experience, on the average, than those of any other part of the United States. California has less moth per colony than most of the eastern states, for the reason that beekeeping here is a specialty, and not a side issue that receives attention after the rest of the farmwork is attended to. We have some dirty, sloppy, careless beekeepers the same as may be found anywhere, but they are the kind that come and go rapidly. The beekeepers worthy of the name are here to stay, and are not harboring moths.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



DIFFERENT FEATURES TO BREED FOR

"I have been thinking about breeding bees for certain purposes. As the flora of our country is not the same everywhere, should not each locality breed strains of bees which are not only adapted to the climate, but also adapted to the flora of that section?"

This is something I think I have never heard spoken of or written about. I know that one strain of strawberry-plants will do well in a certain locality, yet be of little value in another, and that there are very few which are adapted to all sections of North America. Therefore the wise small-fruit raiser will test the different varieties till he finds those which thrive to perfection in his immediate vicinity. I am also aware that the Italian bees will prove successful in times of certain bloom which the blacks consider hardly worth noticing, while on both clover and basswood bloom there seems little difference in favor of either. Quite a few seem to think that the blacks are superior in buckwheat bloom; but after a careful watching, covering a long term of years, I fail to see any material difference. Then there seems to be a difference in different colonies in the same locality as to a successful outcome at the end of the season; but the question is, whether a strain of bees reared and bred for central New York, to as near perfection as possible, would prove less perfect in their nectar gathering in Iowa or California. This is something regarding which beekeepers have rarely if ever expressed an opinion. Is there a reader who can give us any light?

"If we are to develop hardiness in our bees, can we of the North afford to use imported or southern-bred queens?"

This has often been asked me by correspondents. I do not think I have ever written on this for publication, as I did not wish to say any thing that might injure our southern queen-breeders or throw "cold water" on those who consider imported stock superior to queens we already have in this country. It is one of the laws of nature that, the further north or south of the equator any animal or plant can live, the tougher and hardier it becomes. Bees are no exception to this rule. Years ago, before I practiced cellar wintering, I found that both imported stock and that reared in the extreme southern portion of the United States would be affected by dysentery two to four weeks sooner, in a long cold winter, than would that reared in our rigorous climate for a term of years. But when it came to cellar wintering (my custom for the past thirty years) I could see little difference.

"Which is better to breed from—thoroughbred or crossbred stock? Is not the thoroughbred liable to be bred 'in-and-in' till the strain weakens?"

When bees are crossbred to improve the stock, there is no way of knowing if the crosses are pure or not; and new blood could be infused into them without its being known and to their injury. This objection is insurmountable unless some way can be found to fertilize the queens other than the natural way. By cross-breeding we are just as likely to get the bad qualities of both breeds in the cross as to get the good ones. If I am right, the general improvements in our bees which so far have been made have been attained by taking one variety and improving it by selection, without any cross-breeding whatever. In this way different strains of honeybees can be produced with one or more features. Thus one strain could be produced especially to secure extracted honey—mere honey-gathering its particular feature. Another strain could be produced that would also have comb-building as a special feature. This would be the one for the comb-honey producer, especially if white capping of combs could be added. Breeders have worked along this line so that there are Italian colonies now in the United States that cap their section honey very nearly if not quite as white as do black bees. Such breeding does not seem to injure them.

"How about beauty? I admire beauty; but would not wish it to the detriment of other qualities."

Although beauty is not one of the most important qualities of a bee, I have noted during the past quarter of a century that nineteen out of every twenty persons, no matter whether they prefer the dark Italians or not, will stop before a colony of golden Italian bees and express their pleasure. Beauty is an important factor in human enjoyment. This world was created in beauty. We see the firmament arched with the rainbow of beauty, and at night the heavens are decked with "starry gems" of beauty. The beekeeper who appreciates beauty in his apiary is generally the successful apiarist.

GENERAL CORRESPONDENCE

BEEKEEPING ON THE APALACHICOLA RIVER, FLORIDA; HOME-MADE HIVES

BY E. R. ROOT

Last spring, while I was visiting our boys who were managing our bees at Randlett's Landing, I took a number of excursions up and down the river with Mr. Marchant. On one of these trips I visited Mr. R. L. Tucker, who formerly owned Randlett's Landing, where he kept bees for several years. He has since carried on the beekeeping further down the river. The weather was cold the day of my visit in March, and a good warm fire in his workshop, even if it was in Florida, seemed very comfortable. I did not have with me my camera at that time or I should have been very glad to give you another picture of him in his present location. I showed his apiary at Randlett's in GLEANINGS, pages 81 and 82 for the year 1912. It is sufficient at this time to say he is one of the old-timers. He has studied carefully all local conditions, and he has apparently made a success of the business.

On another one of these excursions up the river I had the pleasure of meeting an Ohio beekeeper, a retired business man of Toledo, who spends his winters in Florida keeping bees to the extent of several hundred colonies. When Mr. Marchant and I arrived there he was out in his "workshop," which was outdoors, where he was busy making hives with the aid of a single-cylinder gasoline-engine which he had taken from an old Cadillac automobile. Lumber is cheap down in this country; and while it is not equal to white pine for hives, nor as light to handle when made up, it does very well. Fig. 1 will show his rig.

In this connection it is proper to remark that an old discarded automobile will often furnish a fairly good engine, even though the running-gear is completely worn out or out of date. Some of these old single-cylinder motors, such as are found in the Cadillac and the old Olds, make very good stationary engines; at least Mr. Summerfield, who is of a mechanical turn of mind, was getting good service out of his old Cadillac. When one of these engines is detached from the automobile frame and radiator a substitute of course must be used for cooling the water. A common barrel with proper connections, as shown in the illustration, does the work very nicely.

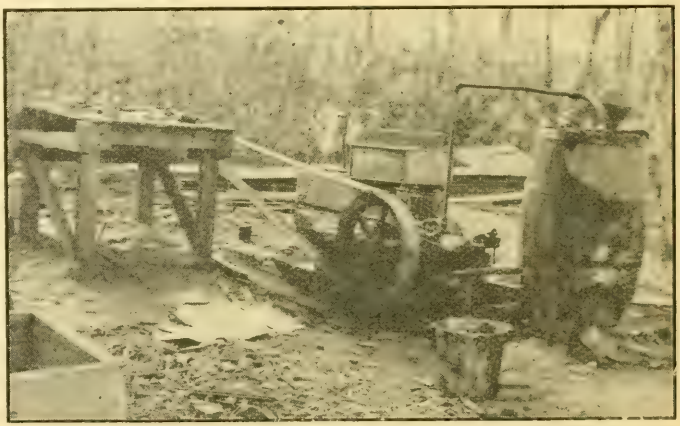


FIG. 1.—F. W. Summerfield's beehive shop driven with an old single-cylinder automobile engine.



FIG. 2.—Summerfield's gasoline-cruiser in which he and his family went from Toledo by rail and water to Apalachicola, Fla.

Our friend is rather fond of machinery and boats. He has a regular gasoline-cruiser which he brought from Toledo in which is mounted an up-to-date four-cylinder four-cycle automobile engine. When he went to Florida the first time he put his cruiser, Fig. 2, on a big flat car, and he and his family rode in it all the way to the nearest point where they could get into the river. Then the boat and all was put into the water, when he and his family went the rest of the



FIG. 3.—F. W. Summerfield's apiary on the Apalachicola River about twenty miles from Apalachicola.

way on their own power. They cruised here and there, and finally selected a location on the Apalachicola River about 20 miles from Apalachicola. I do not know, but I rather imagine that traveling in a cruiser by rail is not so bad as it might seem; and the expense, Mr. Summerfield said, was not so very great either. This cruiser was equipped with all modern conveniences, so that he and his family could ride, eat, and sleep in it either by rail or by water. This is a great scheme. The wonder is that more beekeepers do not travel that way.

If one can afford it, a cruiser on a good river with plenty of bee range means pleasure and profit. He can establish outyards, and go and see them from time to time. He can haul the bees from one point to another, eat and sleep on the cruiser with his family, and if he does not finish up his day's work at any particular yard he does not have to hustle off to get back.

I have had a little of cruiser life myself (see last issue), and I must say I like it. Some day when I have more time at my disposal than I do now, and I can afford it, I propose to own a cruiser and operate it in Florida. I say, *when I can afford it.* A good cruiser runs up into money—anywhere from $2000 to $50,000. For a very



FIG. 4.—F. W. Summerfield, his wife and daughter, and two helpers.

good reason I could not, if I would, go very much beyond the lower figure. But, to return.

Fig. 3 shows Mr. Summerfield's yard of bees where he had last spring at least some 300 or 400 colonies. As is the custom in that part of the country the hives are up on platforms or hive-stands. The principal reason for this is to get away from the ants that are very destructive there. In addition to this the ground is cleared off even and smooth, for ants are particularly fond of getting under some old boards, old stumps —anywhere that will furnish a safe harbor.

You will notice how nice Mr. Summerfield keeps his yard. He and his family and helpers, Fig. 4, seem to thrive in this Southland country. He himself is the second man from the right. Mrs. Summerfield is at his left, and his daughter Hester is next to her. The two other men are Sidney Faust and Guy Gallop; but which is which, my notes fail to reveal.

Mr. Summerfield said to me that I might be disappointed in the locality. He had come down there for his health and pleasure as well as for business. While this is a wonderful bee country it has its serious drawbacks. When I met him at our field day at Medina last summer (for he comes back with his family every summer) he asked me how our Apalachicola venture paid out. I had to admit that it cost us more than we got back; but that the experience was worth all it cost.

"I thought so," said he, with a significant smile. "The only way a man can make bees pay in that part of the country is to go *himself* and do a large part of the work. To hire it done as you did is quite another proposition."

He succeeded fairly well, and secured a fair crop of honey, and came back with a carload of *two-story* colonies. Our boys thought when he started north this would spell disaster, as it did not seem possible to ship such big colonies so far, but Mr. Summerfield assured me at our field-day meet he got through with very little loss.

In regard to the matter of increase, he differed with Mr. Marchant in regard to the best way of making it. Instead of putting on upper stories and forcing the bees *above* for increase, he puts the extra story *beneath*. This is his argument:

SUMMERFIELD'S PLAN OF INCREASE.

Heat rises. If a story of empty combs is put beneath instead of on top, the heat will stay with the brood *already started*. As the strength of the colony increases, the heat will work downward. *The queen will follow no faster than the bees can take care of her brood.* On the other hand, if empty combs are placed on top the heat will desert the brood in the lower story, and rise into the upper. This will compel the field forces to stay at home to help hold the heat around the brood in the lower story. Mr. Marchant admitted that this might be true, but thought that with intelligent manipulation more rapid increase could be made on the other plan. Apparently both men succeeded in making fairly good increase. The Summerfield plan might be the safer one for the average person to follow, but perhaps the increase might not be as great.

WINTERING SUCCESSFULLY ON ASTER HONEY

BY HENRY PYATT

In my location asters are the main fall crop, with goldenrod supplementing. My bees stored some of the whitest-capped and nicest-looking honey of this variety one would want to see last fall. One hive filled a 28-section super in ten days besides the brood-nest. Every cell and the sections were so they could be graded fancy. I depend on it for wintering almost entirely.

Last winter my loss per hive, by count, amounted to almost 200 bees. This winter it will be somewhat heavier because they have had only one little flight since Dec. 1.

I winter in double walls with about 1½ inches of ground cork in between; contract the entrance to ⅜ x 4 inches; take out two or three frames from a ten-frame or one or two from an eight-frame, and spread the middle frames apart, or those where the cluster is, so that there can be two or three thicknesses of bees between the two center frames. I leave the rest of the hive open—that is, I don't fill up any inside space with packing. The frames fill the rest. Then a thin super cover sealed but with a place for a Porter escape is tacked over with wire cloth. Lastly I use a burlap bottom tray with four inches of ground cork. This ground cork is ideal. It holds the warmth of the cluster, and yet lets all moisture escape.

I have opened hives when the temperature was about 30 degrees, and found the bees spread over five frames. Except in extreme

weather they are at the bottom of the hive where they should be.

My hives are very seldom moldy or wet in winter, and only occasionally will a little water trickle down inside. A telescope cover fits down over all. Two gable holes one inch in diameter have been bored in for ventilation. My idea is that a slow upward ventilation to draw off any moisture is what is wanted without creating a draft, and yet something that will hold the heat of the cluster.

I am right in the heart of Pittsburg, but in the residential section, where every vacant lot and hillside has its quota of sweet clover, aster, and goldenrod. Besides there are many basswoods and linden trees. Then three miles in two directions will get the bees forage in the hilly countryside. I never traced any, but imagine they make some long trips.

From four hives last year I got 75 lbs. of comb honey, and 120 lbs. in shallow frames. Besides, I had two swarms, and started five nuclei of one to three frames each, which I sold. I have never had any disease but once, and I am not sure about that. I soon got rid of the hive that had it.

I have several friends, young and old, that have bees here that they got from me. I try to interest them in up-to-date beekeeping. I even gave some to two parties because they were enthusiastic boys, and wanted something to do. Now they can handle the bees well.

If you have as good success wintering on aster as I have had you need not worry.

Pittsburg, Pa.

A WINTER IN DR. MILLER'S BEE-CELLAR

BY C. C. MILLER

An intended visit to Washington, D. C., a year ago last fall, made me want to cellar the bees as soon as it would do, so they were taken in Nov. 8, a little snow being on the hives, but no attention was paid to that. In the evening I went down cellar to see how quiet or noisy the bees were, and was amazed to find one hive lying on its side, without cover or bottom-board, and the frames partly out of the hive. The whole row from which it fell was like "a bowing wall," several piles just ready to topple over. I summoned aid, and we lifted down perhaps 25 or 30 hives, and returned them in proper order. Incidentally we got one of the worst stingings of our lives. Evidently the bit of snow melting on the covers had made a toboggan.

Moral.—People who use zinc covers should sweep off the snow before taking in cellar.

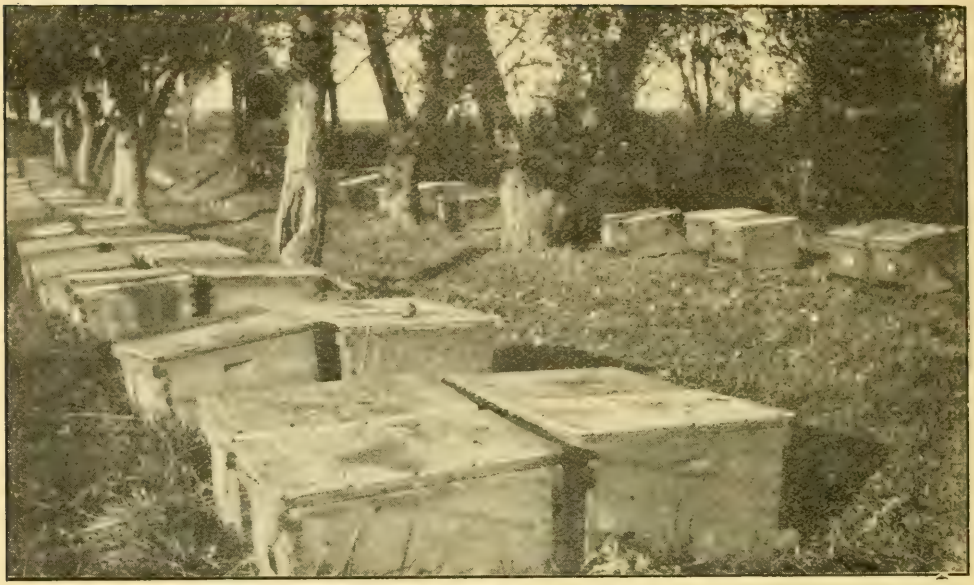
The family started for Washington Nov. 11, leaving in the house a cousin and his daughter, thoroughly trustworthy, but inexperienced with bees. The bees did probably as well as if we had been at home; but the weather was unprecedentedly warm, and it would no doubt have been better if they had been taken in a month or more later.

On reaching home, Dec. 19, I went down cellar with some anxiety as to what I might find, but found nothing alarming. The bees may have had a pretty warm time of it, *but they had had good air.*

The thermometer in the cellar was a rickety old affair, and I got a new one, a Taylor, guaranteed. Since its installment I am suspicious that the old one had reported the cellar warmer than it really was. At any rate the cellar seemed cooler with the new one. Following is a record for several days in the month of January, temperature being taken on the morning of each day. The first column gives the day of the month. The outside cellar-door is a double trap-door, and the second column shows how many inches high the one leaf was raised. Of course the "0" means that the door was closed. The third column gives the outdoor temperature, and the fourth the temperature in the cellar.

Day	Door	Temperature outdoors	Temperature in cellar
January 12....	2	1	45
January 13....	6	12	46
January 14....	0	25	43
January 15....	30	29	47
January 16....	30	33	46
January 17....	27	30	47
January 22....	6	8	42
January 29....	36	31	53
January 30....	6	16	46

Some of those figures do not appear very consistent. Jan. 12, with the door open 2 inches, and only 1 above zero outdoors, it was 45 in cellar. Jan. 14, with the temperature outside 24 degrees warmer and the door shut, one might expect it several degrees warmer in cellar; but instead of that it was 2 degrees colder. To make the table complete, or, rather, more nearly complete, there should be another column giving the velocity of the wind. Jan. 14, the closed door and the warmer weather outside were more than counterbalanced by a strong wind.



Hives taken from the cellar, and placed on the summer stands.

There was another disturbing factor, the furnace. It was in the outside room, into which the outside door entered, the bee-room adjoining, the door between the two rooms being open practically all the time. It will be easily understood that the hotter the furnace the warmer the bee-room. Really that is as it should be, for the colder the weather the more need of heat in the furnace-room to keep the bee-room from being too cold.

With February came colder weather, going one day down to 14 below, although that is not so very cold for this locality.

Feb. 18 I swept up the dead bees for the first time, after the bees had been in 102 days. I think I never let them go so long before, and do not commend it as a practice. The bees swept up weighed 12 pounds and 9½ ounces. I had brought from Washington, the gift of my son, a superb pair of scales, so delicate as to weigh a milligram, or a thirty-thousandth of an ounce. I took 15 dead bees, and they weighed 620 milligrams. According to that there were about 138,000 bees swept up, making a mortality of about 1366 per colony.

I am sorry to say I do not put entire reliance on those figures. According to them there should be about 10,000 bees in a pound, while the A B C and X Y Z tells us there are 4500. It should be explained that the bees swept up were not entire bees, but merely the remains of what the mice had been banqueting upon for more than three months. That would still leave the figures reliable provided the remains were uniform. Unfortunately they were not. Most of them, to be sure, were. The heads were eaten off and the insides scooped out. But there were a few with scarcely any thing but the wings left, and of course a very few not yet touched by the mice. Added to that was the fact that the bees were not all swept up clean, for some would be under and between the piles. I suspect that the 15 I weighed were heavier than the average; but if I might be allowed to guess I should say that a mortality of 1500 per colony would be nearer the truth.

While sweeping up the bees it was by no means a pleasant surprise to notice that No. 78 had starved to death. I say "notice," for you don't need to examine carefully in such a case, but can tell by the first glance at the bees outside. It would be hard to describe in words, but is the easiest kind of a thing to recognize by the peculiar appearance of the dead bees at and about the entrance when a colony dies of starvation in a cellar. No. 78 was one of the biggest and best colonies; and when a colony has filled a big lot of sections it is generally needless to examine whether it has looked out for itself. But No. 78 had stored in extracting-combs, and I suppose I've got to learn that such a colony is not as safe for winter as one that works on sections.

TROUBLE FROM WARM WEATHER.

March 14 came a very warm day. At 1 P. M. it was 56 degrees outdoors and 53 in the cellar. At 3 P. M. it was 60 outdoors

and 54 in the cellar. The bees were a little noisy, and there was a slightly disagreeable smell in the cellar. The cellar door was kept closed; for if it had been left open the bees would have flown out of the cellar. At times it is all right to keep the door open, even if a few bees do fly out, for keeping the door shut makes the air foul, and more bees may fly out and fall on the cellar bottom than would fly out with the door open. But when it comes as warm as 60 outdoors, and that toward the end of their winter's confinement, opening a door which admits the light is likely to invite to a general exodus.

I don't think the uneasiness of the bees was because they were too warm, but because the air was foul. Bees ventilate when the air is foul in the hive; but in this case there was no ventilation of the cellar, and so the air of the cellar outside the hives had become more or less vitiated, and ventilating the hive could not have its usual effect. Ordinarily the air outside is colder than it is in the cellar, and so heavier. The heavier outside air forces itself into the cellar through all cracks and openings, much as water would force its way in if the cellar were surrounded by water; the warmer impure air is forced upward and outward, and thus a supply of fresh air is forced into the cellar. But when the air outside becomes warmer and lighter than the air in the cellar, the cold air quietly remains in the cellar, no matter how foul it becomes. If the door should be left open there would be some change, in spite of the rarer air outside. It would be a good thing if I had some arrangement by which a large opening, or large openings, could be made without admitting light. Still better it would be if a stream of fresh air could be fanned into the cellar, as occurs in some city buildings. I have no such arrangement. I can only grin and bear it till night comes.

With 60 degrees outdoors, there was some temptation to think the bees had better be taken out. But there was the possibility that a cold spell might come, and then the bees would be better inside. The cold spell did come, and for several mornings in succession the thermometer showed 16 to 18 above zero. Then the thermometer began to climb again. March 24, in the evening, I opened the door and window wide. It blew hard all night, and rained, and with so much wind I felt easy that the cellar would be well ventilated and the bees quiet. In fact, I forgot all about them till 8:30 next morning. Then I went down to see how nice and quiet they were with the full light shining in upon them. I was fooled. They were anything but quiet, and were having a high old time sailing to the window. I hastened to shut out the light, with a feeling that I didn't know much about keeping bees. It was 52 degrees outdoors, and 54 in the cellar. By 10 A. M. it was 54 out and 56 in. All I could do was to wait with what patience I might until dark, when I opened up wide, and by morning they had settled down, and after that the weather was cooler.

WINTER MORTALITY.

As already mentioned, the dead bees were swept up Feb. 18. On five other dates they were swept up, and also after the bees had been carried out, April 13. In the following table the first column shows during how many days the dead bees had accumulated; the second column shows how many pounds had accumulated during that number of days; and the third column shows the daily accumulation.

	Days	Pounds	Daily
Feb. 18	102	12.59	.1234
March 17	27	27.5	1.02
March 24	7	6.75	.964
March 30	6	14.75	2.458
April 3	4	5.5	1.375
April 13	10	28.75	2.875

It will be noticed that the mortality in the first 102 of the 156 days was only one-eighth as much per day as at any time after. That is, perhaps, about the usual thing. I don't know how to account for the discrepancy in figures afterward, especially March 30 being nearly twice as much as April 3 as to daily loss.

MICE IN CELLAR.

Some one may ask why so many mice were allowed in the cellar. There were not many. They were constantly trapped; and yet with the cellar door open there was constantly free entrance from outside. There were not enough so that they did any harm to the combs or bees in the hive, the dead bees on the floor occupying their attention.

BEES STRONG IN SPRING.

Having been brought in so early, and having been in cellar so long without the usual care on my part, I was a little anxious as to what the condition of the bees might be in spring. But they came out bright and strong. April 13 Philo Woodruff and Warren Smith began carrying them out in the morning, with the thermometer at 32 degrees. In 2½ hours the bees were on their summer stands; the mercury went up to 62; they had a glorious flight, and all anxiety about the winter of 1913-4 was over.

Marengo, Ill.



Annual conference of the Victorian Apiarists' Association held at the Town Hall, Stowell.

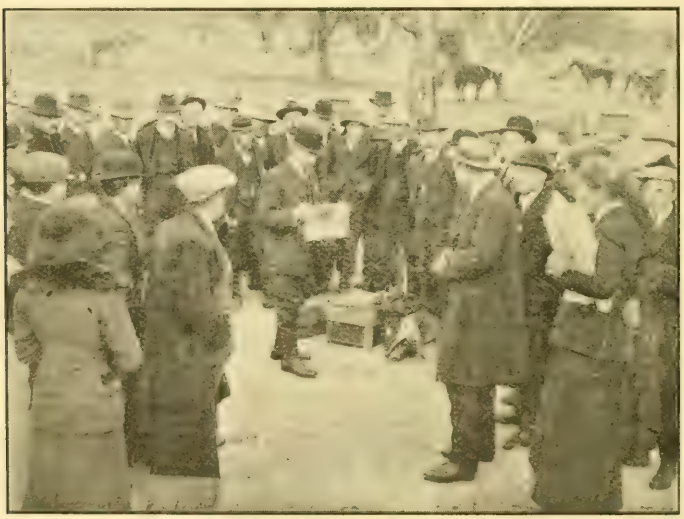
A GLIMPSE OF A VICTORIAN APIARISTS' CONFERENCE

BY E. B. MACPHERSON

As I was a delegate to the fifteenth annual conference of the Victorian Apiarists' Association held at Stowell, July 21, 22, and 23, 1914, I had to travel by train all day and all night to get there; but I was well repaid, if it was only to meet the many beekeepers I made friends with aside from the valuable points of an apiarist's trade one gleans from such meetings.

On the third day of the conference we all drove out in drags and motors to J. C. Liddle's Myrtle Bank apiary four miles from Stowell. The road out was full of interest to the beekeeper, as different species of eucalyptus were passed and noted, and very interesting discussions would take place as to their value to the bee farmer. As it was winter the bees were practically dormant. A few hives were opened at Mr. Liddle's, and the different races of bees examined.

Wintering bees in Australia is simplicity itself compared with the methods the "Yankees" practice with cellars, etc. In the photograph of Mr. Liddle's apiary you will see a typical Australian method. A piece of sack is put on top of the frames as a mat, and the cover is put on. As long as there is enough honey for the bees they are as safe as man can make them for winter.



Mr. R. Beuhne, government expert, giving a demonstration in queen rearing at Mr. Liddle's apiary four miles from Stowell.

After the ladies of the house supplied us with afternoon tea we took a drive through more "bee country," then back to Stowell. Every night of the conference we had lantern lectures by government scientists which were very instructive.

Port Fairy, Victoria, Australia.



Yellow box-tree on left and white ironbark gum-tree on right, near Mr. Liddle's Myrtle Bank apiary near Stowell.

TRANSFERRING MADE EASY

BY LLOYD A. JONES

"Got any bees in box hives?"

"Yep, and I reckon I'll let 'em stay too. I hain't goin' to rip off a side of them hives with the bees in 'em, and cut out the combs and fit 'em to frames, and git all daubed up with honey, and git half carried to eternity by stings."

Wise old man that, who makes such a statement when advised to transfer bees by cutting out the combs and fitting them to frames. But let me give you a little less complicated way, old man, which is also a little cleaner, easier, and quicker. You have probably heard some one speak of the Heddon method. The first thing is to get a good hive with frames, and, if possible, four or five or even six frames of comb in which the bees died the previous winter. Put these frames with drawn comb into the new hive, and insert a division-board close to the outer frame. Go to the box hive, loosen it from the bottom-board, invert it, and place over it a box eight or nine inches deep and just the right size to rest on the box hive and leave no bee-spaces.

Take two sticks and practice your Saturday-night drum part in the band on the sides of the hive. After drumming four or five minutes take off the hiving-box; carry it to the new hive, and dump your bees in front of the entrance. Now put on your



Some of the beemen at Mr. Liddle's apiary.

specs, squat down, and watch for her royal personage. The bees will not stay in the new hive without their queen. If you don't see her, march back to the old hive and begin drumming again. When she goes in, sigh a sigh of relief and go back and restore order in the vicinity of the box hive.

After three weeks make your appearance with the same kit you used before, and drum out the rest of the bees from the old hive. Where did all these bees come from? You gave the hive a vacation of three weeks so that the brood might hatch.

If you think you have a good queen in the new hive, use an entrance-guard at the second drive. Dump the bees as before in front of the hive and watch for queens. If you see any, take them and give them to queenless colonies. Now take the combs out of the box hives. A knife and a saw might come in handy here. Some of the combs will be fairly straight, and some will not. If you have any empty frames, bring them forth. Cut out the imperfect parts of the combs, leaving the best parts in the pieces that you fit into the frames. Take some wire and wrap around the frames to keep combs from falling out, and then put these frames into the new hive into which you have dumped a new lot of bees.

If there is more comb than you can get in that one hive, fit them to some more frames and give them to weak colonies or save them and give to a new swarm. You will probably have some honey left now; but I am not going to bother to tell you what to do with it, because I know you would eat it in spite of what I told you. I like this way much better than letting the bees take it out of the old hive themselves. That is liable to start robbing, especially if weak colonies are around; and my experience has been that the bees make too much of a good thing out of such a proposition. They go into the hive, gorge themselves, come staggering out, tumble out on the grass, and stay until they get over their drunk. They are wasting time, in my opinion. I would rather do that and let them be working in the field.

Litchfield, Me.

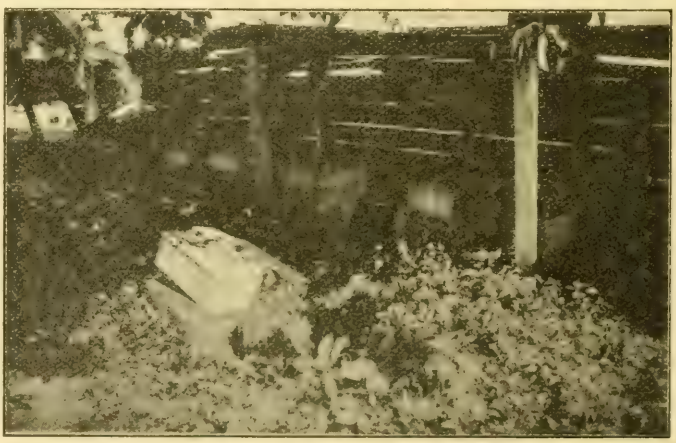
A DAY'S JOURNEY

BY S. H. BURTON

If one keeps bees for his own pleasure and profit the information soon spreads through the neighborhood that Mr. So-and-So is a beeman, and many opportunities come his way for advancing the beekeeping cause and helping his neighbors along. Quite frequently some one offers me a beeyard which has been neglected, and which I am expected to take over and turn into golden honey and bees.

Just recently a friend turned his yard over to me to work on shares, and I agreed to transfer the bees into new hives, furnishing every thing, for one-half the bees and one-half the surplus honey that was in the hives at the time of taking charge. By working along this line I have been able to establish several good outyards, and I usually agree to work other yards for half the honey and half the increase if I furnish all the supplies.

As this particular yard was distant some eight or ten miles it necessitated an early start the next morning if we were to get in a full day's work. The evening before, our spring wagon was placed in front of the bee-supply house, and every thing loaded into it that would be needed. First the tool-case was inspected to see that it contained every thing necessary for transferring and for manipulating hives. This case is large enough to hold the smoker, a hammer, cold chisel for opening old box hives,

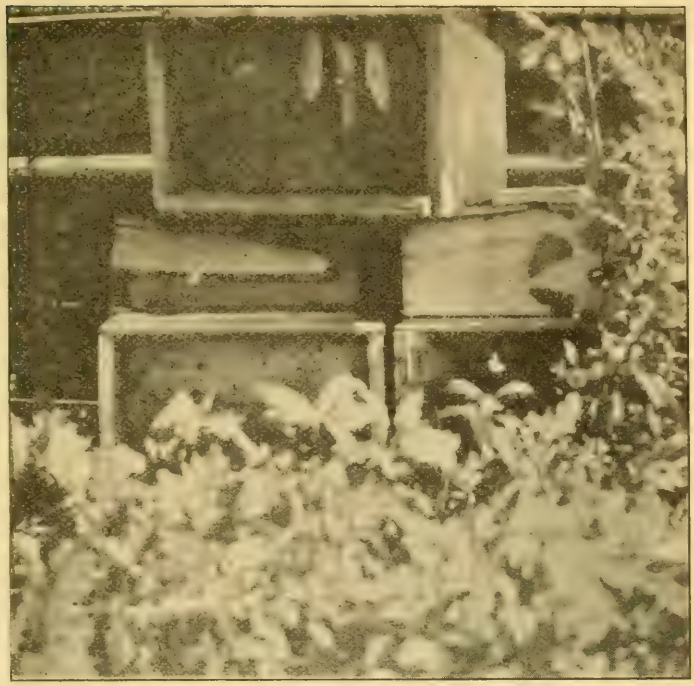


Abandoned bees sometimes do astonishingly well.

a long-bladed butcher-knife for cutting the combs loose, a chisel, a hive-tool, a screw-driver, and bee-brush. This case also has a till in which are carried matches, tacks, several sizes of nails, some large hive-staples, etc. We placed in the wagon six eight-frame hives, several extra brood-frames with foundation, splints, extra supers, two lard-cans for surplus chunk honey, feed for the horse, and a water-bucket. We were ready for an early start except to pack up our lunch before the trip.

An early breakfast and we were off at 3:30 A. M. We enjoy these fresh morning rides past waving fields of grain, through shady dells, over bridges whose cool streams below look inviting for a wade in their sandy banks, now slowly up a steep hill with mammoth beech and oak casting their somber shadows along the roadside, and finally to the crest of the hill where old Prince can stop and blow while we take in a panoramic view of a southern Indiana landscape. In the distance

> Still sits the schoolhouse by the wood,
> A ragged beggar sunning;
> Around it still the sumacs grow,
> And blackberry vines are running.



The bees had built comb on the outside of one hive.

To the south is White River, glistening in the morning sun, and here and there a farm-house dotting the hillside with smoke lazily curling upward in the damp morning air. Fertile fields lie below us with their long undulating rows of waving corn.

The odor of fried country ham in the cold morning air broke our reverie, and we trotted off to reach our destination at 7:30 A. M.

"We're up against it!" were the first words my assistanf spoke on seeing the bee-yard. "Blacks!" he yelled, as one took him under the left eye.

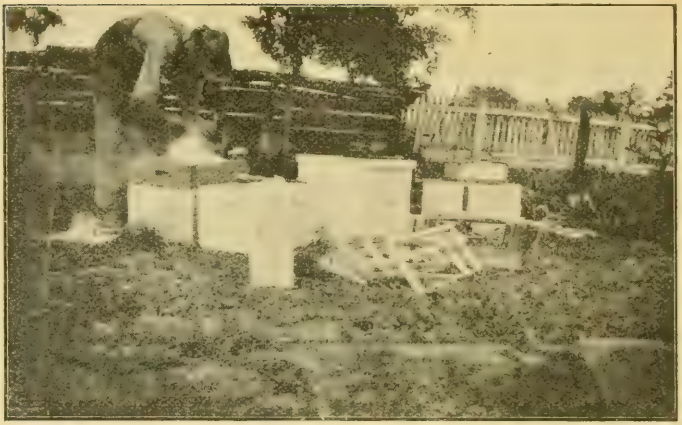
A casual inspection of the yard soon convinced us that bee-veils would be a good thing, for we were going to handle some blacks and hybrids that were entire strangers to such things as smokers and modern hives.

We found fifteen very strong colonies in all manner of boxes, kegs, and antique hives, all swarming with little red ants that crawled



Transferring took plenty of smoke.

up our hands and arms and made us miserable. The chickens and turkeys had made a roosting-place of the shed and tree under which the bees had been placed, and their droppings were six inches deep between the hives. The old foundation on which the hives rested had long since decayed, and the bottom-boards on the old hives had rotted away. Stinkweeds and pokeberry flourished in front of the hives, and the bees were happy in wanton abandon. Stronger colonies one would hardly wish for; and it is a peculiar fact that, where bees are let severely alone, they sometimes flourish surprisingly well.

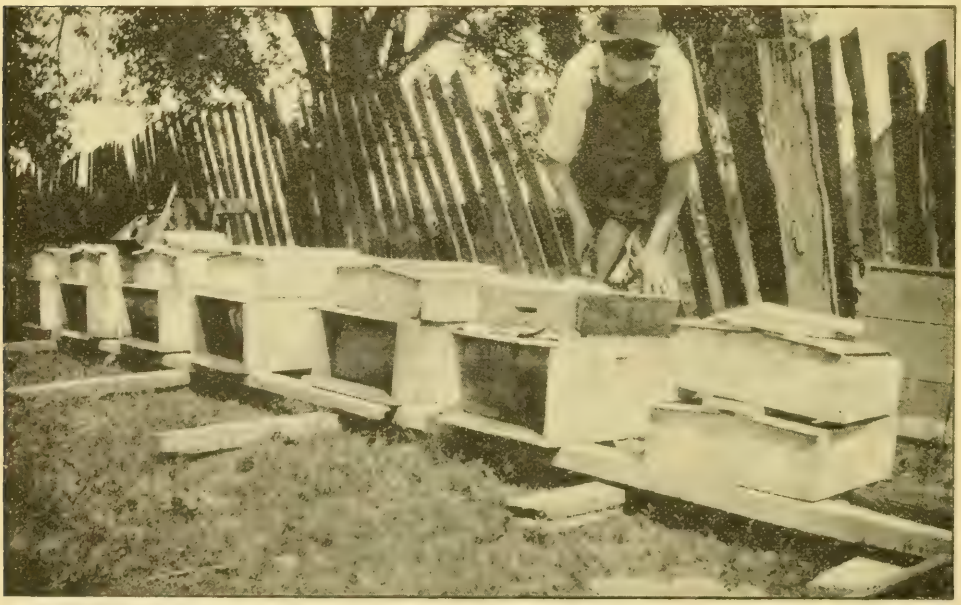


There is a certain satisfaction in cleaning up a hard proposition.

The first view shows the yard before we commenced work. The second gives a glimpse of one corner of the yard where three empty hive-bodies had been stacked up and the bees had taken possession. One hive with the lid knocked off had an old cloth over the brood-frames, and the bees had water-proofed this with propolis. This hive had remained in such a condition through the winter, and the colony was strong and healthy.

We removed the hives to the orchard and lined them up against the pickets. The last photograph shows how it looked when we were done with it. We had placed them on good substantial wooden supports with the bottoms about six inches off the ground, with a chance for air to circulate under them. Red ants were effectually kept away.

Washington, Ind.



We moved the hives to the orchard and lined them up against the fence.

STOPPING A ROBBING RIOT

BY ARTHUR C. MILLER

A bee is a reflex machine—or, that is to say, nearly so. She is much like a small boy, always into something; and, like the small boy, must have her attention diverted into other channels if she is to be successfully turned from the mischief-making. You may correct the small boy by a vigorous spanking; but try it on the bee and you will have proof positive that she is a reflex machine.

Last fall I wrote of some experiences in quelling trouble in an apiary, and said that I would give some of the particulars later. Now a friend reminds me that I have so far failed to do so.

The conditions found were these: General robbing was rife, and the bees were fighting mad. A veil was a necessity. There was a swarm out, driven out by the heat and the robbing turmoil. Two colonies were all robbed out, and one had about half of its population killed. Even the brood had been consumed.

The owner and another beekeeper, just previous to my arrival, had searched through these colonies for the queens and pronounced them queenless. When I came on the scene they were decidedly ready for help. Conditions were actually dangerous.

First I shook the swarm into a large box, threw some water over the bees, covered the box with a cloth, and set it in the shade. Then I threw water into the hive the swarm came from, taking off the cover and splashing it over the frames. The hive was then shaded.

The next thing was to stop the robbing, and quickly too. All of the extracting-combs were above escapes, and free from bees. Some of these were rushed into the extracting-tent and the honey extracted. Seizing one of these supers full of wet combs I walked down the whole length of the apiary and back again. The bees poured into the super until it was full of them, and it was then set on a hive floor placed a rod behind the rear row of hives. Another super of wet combs was used in the same way, and then two more. The four were stacked, a cover put on, the entrance reduced to one bee-space, and the worst of the trouble was over. All of the ugly warriors were inside of those very sticky supers. As fast as other sets of combs were emptied of honey they were stacked in the same way, the piles being six bodies high. (The "supers" were full-depth bodies.) Every super was carried out without bottom or top, and the bees were permitted to pile in as fast as they chose; but once in, and the super on the stack, they could get out only by way of the one-bee-at-a-time space at the bottom. Peace reigned within fifteen minutes after the first super was carried out.

Attention was then turned to the colony that had swarmed. As was suspected, no cells were to be found. The swarm was at once returned, shade replaced, and they settled down to business. The two robbed colonies were the next cared for. A moment's scrutiny of the bees at the entrance of one assured me that they had a queen. The evidence at the other was less positive, for they had lost half of their population; still, I felt pretty sure that the queen was still there. The first stock was opened and the queen was found at once. Two combs of honey were given to it; the entrance was reduced to about one inch, a creosote compound smeared about it, and they were safe.

On opening the second stock it appeared almost ruined. The honey was all gone, all unsealed brood was gone, and much of the sealed brood had been torn open and partly consumed. Over two quarts of dead bees lay on the floor, besides all those on the ground before the hive. The queen was quickly found, and was uninjured. A frame of brood in various stages was taken from another colony, freed from bees, and placed in the front part of the hive right next to the entrance. (All hives in this apiary, about forty, have the entrances parallel to the combs.) The rest of the brood was pushed up against the comb of fresh brood, some of the empty combs removed, and two combs of honey placed in the back part of the hive. The reason for this procedure is that bees will protect brood better than they will honey, or, perhaps I should say, the brood holds the bees close to the entrance, and then they will fight to protect it and their home. The entrance of this hive was also reduced to about a square inch, creosoted, and left. In a few days this stock was nearly normal, though of course weakened.

The psychology of the cure for robbing was to get the bees busy in some other place, and by brief exposure of the wet combs while walking up and down the apiary all of the real persistent and pugnacious robbers were gathered in and permitted to return home only one at a time; and as they of course got well daubed up in those sticky combs they were a long time getting fixed so they could go back.

The diagnosing of queen conditions by

entrance examination is impossible of description; but I can tell you how I learned it. I would dequeen a stock and then sit down and watch the actions of the bees, and the watching might be for an hour or for several hours, and be renewed at intervals for many days. Many repetitions of such procedure shows a lot, provided one has the eyes to see and the ears to hear. This sort of experimental study of bee behavior is most valuable; but, oh how rarely is it used! and how even more seldom do we ever hear of it! One experiment will not suffice. It must be one after another during different parts of the season, and season after season, and with different strains of bees. Can I always tell conditions within the hive by appearances at the entrance? Frankly, no. But I can most of the time, particularly where I know the normal behavior of my strain and the general standing of my apiary. Under such conditions I can tell enough to save myself from opening any but an occasional hive, and even then a casual glance across the top of the frames is all that is needed to settle the matter.

Try the plan of experimental observation and see if you do not discover a new world in bee culture.

Providence, R. I.

FURTHER PARTICULARS ABOUT THOSE TEN-POUND PAILS FOR FEEDING

BY J. L. BYER

When sending in "Notes from Canada," Dec. 1, I did not think that the item on using the common ten-pound friction-top pail as a feeder would excite any comment, as I knew that here in Ontario, at least, the plan was known to the majority of our beekeepers, as it has often been discussed at our conventions. Imagine my surprise, then, to get letters from California, Texas, Florida, and New York, to say nothing of intermediate points, asking that I explain more fully how we use the pails. So far as I know, I have personally answered all who gave me their addresses; but as some wrote me asking me to describe the plan in GLEANINGS, and gave no address, I am taking this opportunity to oblige the last-named, and at the same time to save me from doing a lot more writing on this subject.

The pails that we get here in Ontario have a lid that presses down in such a manner that, when it is firmly in place, the edge of the pail projects quite a little beyond the flat surface of the cover; and as they are inverted over the bees on top of the frames, this projecting edge allows a space for the bees to move freely between cover and frames. With a perfectly flat-surfaced pail this same advantage could be given by placing small strips of wood under each side.

Now as to preparing the pails, that is simplicity itself. Remove the lid to be used, and place it on a block of wood with the inner side up. With an awl or other sharp-pointed instrument (I have used even a three-inch nail filed sharp), punch 40 or 50 holes in the lid. Preferably have a larger number than this with very small holes than a less number with larger openings. Punching from the inside of the lid leaves a smoother surface inside, and will insure cleaner draining of the pail.

For use, all that is necessary is to fill the pail with syrup, firmly press in the lid, and then invert pail and all right over the bees to be fed. If you use a double-walled hive with an extension to take roof or super, simply turn back a corner of the quilt; invert the pail over the exposed surface; pack around it if the weather is cool, and the job is done. If single-walled hives are used, place an empty super on top and place the pail inside. If a honey-board is used it will be necessary to have an opening cut in the board and place a pail over this opening. This is an ideal condition for feeding, as all heat is kept in, and it is absolutely safe from robbers, as the pail fits closely on the board.

Nothing is new about the principle of this feeder, as it is simply the old-time pepper-box feeder used in a more wholesale manner. The hives must be fairly level, and the pail-tops perfectly tight, and then the syrup will come out no faster than the bees draw it from the holes. Atmospheric pressure does the rest. As the syrup is drawn away from the bottom of the upturned pail a vacuum is formed, and this keeps the syrup from running out of the holes. In feeding at an outyard, if you wish to give a colony more than ten pounds of syrup at once, simply give them an extra pail and they have twenty pounds—no measuring of syrup nor slopping it over hives, as the pails can be filled inside of a building and carried out as wanted. If the feeding has been delayed till late cool weather, a pail may be placed directly over the cluster, all packed snugly above, and the bees will take

the syrup readily. In fact, while carrying out some experiments in 1912 for the editors of GLEANINGS I fed some colonies like this late in December, when the weather was decidedly cold. Some other feeders are no doubt just as good; but I doubt if any are always just as handy to use and just as easy to get. Try them and see if you do not agree with me.

Markham, Ont.

THE APITRAM; BEEKEEPING WITH THE LABOR LEFT OUT

BY WILLIAM BEUCUS

In beekeeping there is, at present, a great deal of labor wasted. Wooden hive-stands decay, warp, crack, come loose at the corners, and become unlevel. They must be repaired, leveled, and replaced, all of which costs much labor and money and time in addition. When the honey-flow arrives it becomes necessary to go through all colonies to determine what shall be done to prevent swarming. To get to the vital part, the brood-chamber, it is necessary to lift off the supers, and, when the examination is over, lift them back again. When a swarm issues, the supers must again be handled to get to the brood-chamber for the purpose of shaking or brushing off bees. Every examination and every manipulation which involves the brood-chamber is necessarily preceded by a great deal of unnecessary hard work.

When the time comes to remove the crop, still more hard work must be done. It is no fun, even for a powerful man, to handle all day chambers of extracted honey weighing 75 pounds. Some effort has been made to overcome this. One uses a wheelbarrow, another uses a heavy wooden track and a car to run on it; but still the entire crop must be lifted bodily and transported to the car, a distance more or less great, and then lifted off again. There is more heavy work in the fall and more in the spring in moving bees in and out of the cellar.

The apitram, shown in the illustration, was invented primarily to overcome the labor of lifting off heavy chambers of extracted honey during the honey-flow. Incidentally a large amount of other work has been eliminated.

As a hive-stand, the apitram, once it is properly set up, overcomes the labor of leveling hives from time to time. Made entirely of iron it is indestructible—there is no depreciation. It is collapsible, and is, therefore, portable. The removal of a few stove-bolts separates the sections which may be put on to a wagon, when collapsed, and moved to a new location.

Fig. 1 in the photograph shows the apitram just after it was set up. The supports are of wood; but these will be replaced by combined rests and stakes made of iron, which will be very much cheaper in the long run. To prevent these combined rests and stakes from sinking they will be run through an adjustable galvanized plate which will rest on the surface of the soil.

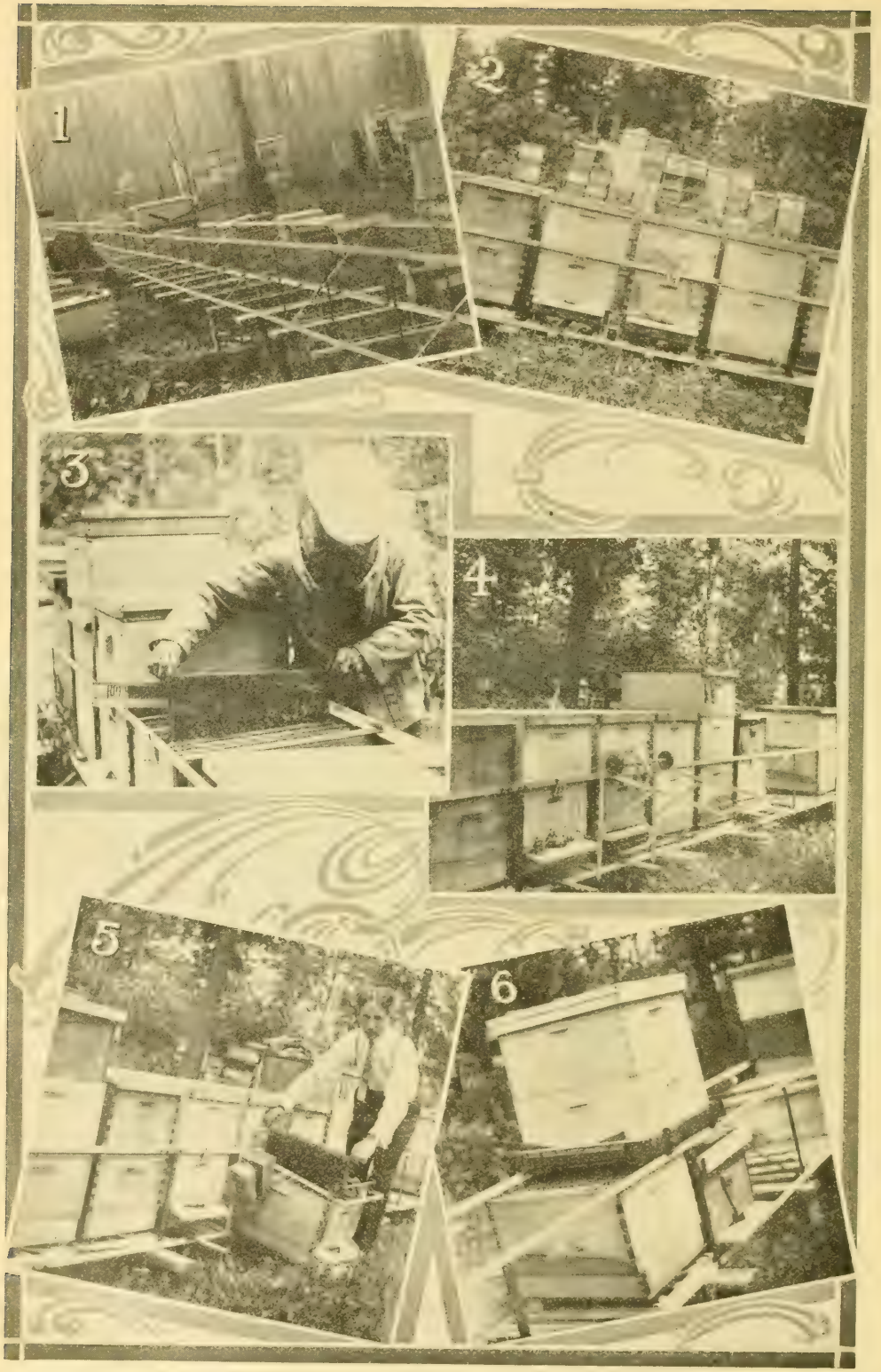
Fig. 2 shows six colonies in place. The center ones, numbered 29 and 30, face toward the camera, and the two on either side face in the opposite directions. This illustration shows the possibilities in neatness.

Fig. 3 shows how combs may be removed between the rails of angle iron.

Fig. 4 shows the lessertram, as we call it—a contrivance by means of which the brood-chamber is rolled out from under the upper stories for inspection, removal of combs, forced swarming, replacing queens, etc.

Fig. 5 shows the brood-chamber drawn out and examination of combs taking place. Notice that the smoker is hung conveniently near. Two projections of iron, about two inches long, will later be riveted to the opposite side to furnish a support for the first comb removed or for the division-board. In front a part will be fixed for the scissors and the hive-tool.

Withdrawal of the brood-chamber is accomplished as follows: The T, shown in Fig. 2 and also in Fig. 1, just below the caster, is shoved back. This lowers the rear end of the brood-chamber. The lessertram is slid over into place and the hook rolled up until the point is well under the hive-bottom. The wheels are now allowed to roll down as far as they can, which tightens the grip. Two blocks, one of which is shown in Fig. 1, are removed from the tin channels in which they slide, thus lowering the forward end of the hive which now, in most cases, begins to roll forward. With a slight pull the chamber is brought out as far as it will go. As there are two casters at the back of the hive, which run in the tin channels, and as the two wheels on the lessertram are of the roller-bearing type, the chamber sometimes rolls half way out without being assisted. The tin channels make it impossible for the casters to run sidewise when shoving the chamber back. It must go back to the point from which it came.



Wm. Beucus' scheme of locating hives on a steel track so that lifting and carrying supers is avoided. Another view of Mr. Beucus' apiary is shown on the cover.

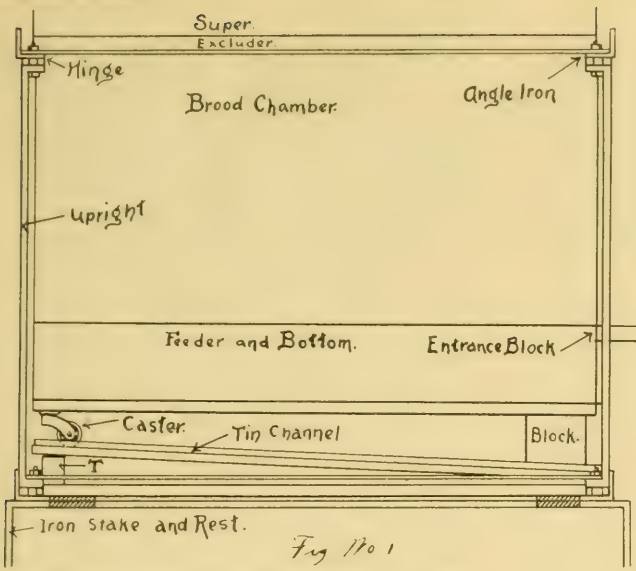


Fig No 1

Fig. 6 shows the apitruck. To use it, the brood-chamber is first lowered. The side toward the camera is removable, which makes it possible to roll up the apitruck and surround three sides of a tier of supers. The fourth side is now replaced, thus surrounding the supers entirely. The levers, a pair on each side, take hold under the supers. Each pair works in unison. A pressure of about one-tenth or less of the weight of the supers is needed to lift them.

The apitram is supposed to be extended into the extracting-room directly to the uncapping-tank. The photograph shows the apitruck in the center of the apitram with a tier of supers on the way. In actual use the tier of supers nearest the extracting-room is run in first. This leaves the track clear for the second tier. Thus one tier after the other is taken in. The wheels in the apitruck are roller-bearing.

No doubt the reader will gaze at the apitram in despair, and remark mentally, "It must have cost a lot of money." But such is not the case. One lessertram, one apitruck, and 160 feet of apitram cost with freight, cartage, labor, money orders, iron, bolts, etc., included, $46.60. The cost is thus less than 50 cts. per colony. Of course my own labor was not included.

Are we justified in making an outlay of 50 cts. on a colony? Let us see. With the apitram, only brood-chambers are handled during the honey-flow. The time and labor thus saved can be used to handle a great many more colonies. In my own case I think it will be double the number. But this is not all. If the hard work is eliminated, the period of productivity is lengthened. Man's power to do hard work decreases as his age increases, after a certain point is reached. If the apitram enables a man to produce even five more crops than he otherwise would, has not the apitram paid for itself?

Some may say that facing two colonies the same way, with only two inches between them, will cause the bees to mix and will result in the loss of young queens. I have watched this closely during the season and have yet to find a single lost virgin although several nuclei were placed on the apitram for the purpose of having virgin queens fertilized. Now as to bees mixing.

In August a colony of black bees on the apitram was examined; and, strange as it may seem, the colony had not a single yellow bee, although the bees two inches from it,

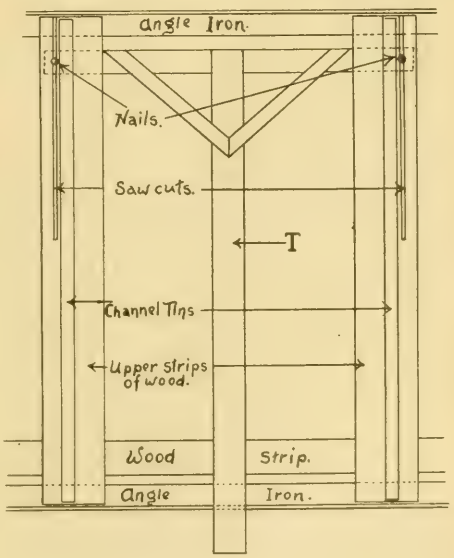


Fig. No 2

in a hive facing the same way, were hybrids with yellow strongly predominating. In fact, an entrance close by enables a bee to mark more certainly its own. How do I know this? When a brood-chamber is rolled

out, some of the bees of the adjoining hive endeavor to find an entrance at the back of the hive next their own. They have marked their entrance as one of a pair. With a chamber rolled out they return to one entrance instead of a pair, and naturally shift over one place to the right or the left as the case may be.

Briefly summing it up, then, we may say that the apitram and its accessories secures the following advantages:

It furnishes a hive-stand which, once properly leveled, need not be leveled again.

It eliminates depreciation of the hive-stand and reduces depreciation on hive-bottoms.

It prolongs the producing period of the beekeeper.

It immensely reduces the hard labor in beekeeping, and thus makes the work pleasanter.

It greatly increases the number of colonies one can keep, and thus makes the business more profitable.

It makes the business look more like a business.

It secures the maximum of neatness.

By placing the largest number of colonies in the smallest amount of space it saves space and steps.

Cadotte, Wis.

[We presume that some may be inclined to ridicule this array of machinery, tracks, etc., for doing away with the lifting in an apiary. However, none can doubt the ingenuity displayed in the arrangement considering all its details.

We do not wish to throw cold water on so clever a plan, but there are a few objections which we believe Mr. Beucus himself will recognize after he has tried the arrangement several seasons.

Having the colonies so close together, besides causing some mixing up on the part of the bees (of course partly done away with by changing every two colonies around so that the entrances face in the other direction) also causes some inconvenience to the apiarist, as it is necessary to stand at the back instead of at the side of a brood-chamber unless the brood-chamber is run out in front by means of the "lessertram."

We admit that the whole arrangement seems to us rather complicated. Taking every thing into consideration, the time of putting it up, etc., we doubt whether it would bring about an actual saving in time; but that it may be a saving in strength after it is once set up, there is little doubt. In this country, where it is not necessary to locate the colonies in the smallest amount of space possible, it is a question whether it pays to spend very much money on a permanent equipment, such as a house-apiary, for instance, or some such device as this mentioned by our correspondent, for conditions are such that it often becomes advisable to move the bees from one place to another. While this apitram could be moved we think that the labor required would be a considerable item.

In our opinion, moving supers to the honey-house by means of the apitruck would not be practicable, at least in very many cases; for unless the extracting is postponed until after the honey-flow, empty supers must be returned to the hive. If the apitruck were used they would have to be stacked up until the whole extracting were finished, and then returned all at once; moreover, in case of double-story colonies, or colonies with partly filled supers, the upper stories would often be in the way.

After having said all this, however, we believe there are possibilities connected with the plan. If an expenditure of a moderate amount of money will bring about a saving of both time and labor, such expenditure is worth looking into at least.—Ed.]

THE BUGBEAR OF SPRING DWINDLING

BY E. S. MILES

When I first began to have the bee-fever, more than twenty years ago, one of the first phrases I heard that came near curing the fever was "damps." A farmer kept some bees in the "good old way" in some boxes in the back yard, and one severe winter a large part of them died. The old farmer, investigating on the first warm day toward spring, found the combs all wet and daubed with honey still in the hive. So, thinking they could not have starved with honey in the hive, he very properly, perhaps, with his knowledge, said they were afflicted with the "damps."

That word "damps" struck a chill through my apicultural frame, if you will allow the expression, and lowered my fever several points. Why do bees die with some dreadful mysterious malady? Damps? Whew! the name was enough to dampen one's rising enthusiasm. But on second thought it occurred to me to ask myself

whether the person making the diagnosis was competent. If it was really a disease which occurred only in winter, then why not *every* winter?

So the conclusion came that it perhaps was not a disease, but the result of some conditions that might be avoided. So the "fever" advanced until I got possession of three or four colonies of bees, and in the course of time I secured the 1891 edition of the A B C and X Y Z of Bee Culture.

I had just about recovered from my misgivings about the awful "damps," when, in reading this admirable book, I came to the subhead, "Spring Dwindling," under the head of "Wintering."

After looking at the picture of the "blasted hopes" apiary I thought, "Horrors! here is a malady. Now if you're wise you'll go a little slow on this bee business."

By this time I was too far gone to be scared out of the business, so I went on studying and practicing what I studied, to see how it would work for me. But for some time this spring dwindling haunted all my beekeeping thoughts. Some spring I would tell myself, "My bees will get spring dwindling, and I'll be wanting to sell out cheap and 'move to Kansas.'" In the mean time my bees wintered well, came out of the cellar (for after reading the evidence I decided for cellaring) about as strong as they went in, and seemed to have just as much vim and energy in April as in October.

After a number of years I began to question the idea that this spring dwindling is a mysterious and unpreventable thing, whether disease or effect of untoward circumstances. By this time I had found that in actual practice, with me, some things worked out a little differently from what I expected when I read the book. I began to see that, while the book was in the main correct, yet everybody would not everywhere reach the same conclusions by following its instructions; and that when I undertook to do something "according to the book" I was not bound to accept only what results the book led me to expect, but that I could get whatever results there actually were. From that time I really began to learn the ways of our little friends. The book, therefore, was a sort of guide to start me on certain experiments until such time as I should be advanced enough to guide myself.

Well, by the time I had kept the bees several years, and had increased to a small apiary without winter loss or any appearance of the dread spring dwindling, I began to gain confidence; and as I gained confidence the fear of spring dwindling grew less. By this time I even laughed at the "damps."

So it ran on from year to year. I tested outdoor wintering also, alongside of cellaring. After fifteen years of wintering all kinds of bees in about all kinds of conditions I came to say to myself, "Why, what makes you say, 'I'll do so and so, if the bees winter'?" If you care for your pigs, cows, or horses in a proper manner, don't you figure on having practically all of them next spring? Of course, but they are not bees. What difference does that make? If you have cared for your bees as to feed and shelter for fifteen years, and they have proved it by coming through safely, can you not do it for another fifteen years?

So now I was almost laughing at the phrase spring dwindling—not that it was quite as mythical a thing as the "damps," but fast becoming so.

About this time I stumbled on to the greatest fact in regard to the nature of bees that has come to my knowledge thus far on my apicultural journey. This great fact is the variation in bees. Heretofore "bees were bees." I looked upon them as all alike, to be treated all alike, and to expect like results. It took several years to convince myself that my imagination was not playing me a trick.

But in these several years wherein I was studying this fact of variation I really came to laugh at the term spring dwindling. Yes, I know what beekeepers mean by it now who recommend a certain kind of hive to prevent it, the same as I know what ailed the old farmer's bees when he said they had the "damps," and he wanted a moth-proof hive too to save his bees from the moth-worms, just as you want a chaff hive to prevent spring dwindling. You ask if I mean to say a chaff hive will not prevent spring dwindling. No, I don't. I let those have chaff hives who want them and think they can afford them; but they may or may not prevent spring dwindling. Have you guessed by this time what causes it?

Give my guess—spring dwindling is caused by unfavorable surroundings or poor feed, or both, through the early part of the winter, this causing the colony to reach the season of year when it needs the greatest vitality, with greatly lowered vitality. Hence, instead of gaining in normal seasons, or holding their own in adverse ones, it loses, or spring dwindles, until some cold night finds them with too small a cluster to maintain the necessary heat, and they perish.

Now I hear some one asking, "What has your variation to do with the matter?" Mr. Root, in that old edition referred to, says in

substance that it will affect one part of an apiary and not the rest, or all of one and not another a short distance away. "Some don't seem to be affected by it at all." Is there not variation in bees as to hardiness, good wintering, honey-gathering, swarming, and many other traits? But these people whose bees suffered with spring dwindling and the "damps" thought a "bee was a bee," and one swarm as good as another if it had as many bees.

When I had kept a correct record of colonies for years I began to see that a bee was a bee, and in some cases quite a little more so, and that some colonies would stand a whole lot more adverse circumstances than others without serious injury; and, more, I found if one bred his queens from these a large proportion would be the same; and that by breeding from a good thrifty, hardy, honey-gathering strain, one would have better colonies to start winter with, and more and better stores. Then each colony would also have more vigor to resist untoward conditions if it did happen to meet them, and, finally, would have more vigor and "grit" to hang on if by any chance the colony does get injured in wintering. So, now, when I hear any one saying, "We had an awful spring, my bees got spring dwindling," I always think of the old farmer whose bees got the "damps."

Dunlap, Ia.

THE ALTERNATIVE: FEED OR UNITE?

BY L. E. KERR

It is not always necessary to feed bees, since for years they go without requiring such attention. Certainly it is never advisable until necessary. It depends upon the nature of the crop, bees, queen, hive, season, and management. For several years we have done no feeding whatever, but have frequently employed the alternative of stacking colonies until the pile is sufficiently deep that the food question among them becomes one only of moving occasionally to the next floor.

In a climate that does not favor close protection, united colonies have often been left to arrange household problems as fancy dictated, and they invariably come out in spring in a condition that argues well for co-operation. With strong colonies, however, and especially where decrease is objectionable, there is a question as to whether it would not be more satisfactory to put at good interest some time and money in keeping integrate and well fed the separate family circles.

When with the modern shallow brood-chamber an occasional colony stores all honey in the supers, to be removed entirely by the inconsiderate apiarist, why should he not in return provide other and ample stores? Otherwise, could he reasonably hope another season to have any surplus at all in those supers?

Should any appear light before flowers bloom, an empty super can be put on, a few pounds of loaf sugar heaped upon the frames, and every thing packed warmly with paper or burlap before the outer cover is again put on. It is the work of but a moment, and cannot be improved upon for cold-weather feeding.

Bees, unlike their owner, regulate operations at all times in strict accord with the extent of their resources. Unless they go into winter well supplied, their stores by spring will be much reduced; and, above all others, this is the very time they never should feel pauperized.

With the advent of flying weather if any colonies have insufficient means for unhampered brood-rearing, some profitable stimulative feeding can be done. It is best done evenings, and can be gradually lessened as nectar increases. While some speak lightly of slow feeding to induce brood-rearing, it will give greater results.

In small feeders efficiency is embodied in a one-cent self-sealing can having a dozen small nail perforations through the lid. They can be inverted directly upon the frame tops, above the cluster, but are used to greatest advantage over the opening of an escape-board or inner cover. If such a cover is left on during fall and winter, it will be tightly sealed to the hive, and no cold drafts created.

Among all living creatures few instances can be found where nature ordered a faster shifting of generations than is provided in the worker bee. Well within each sixty days, through the summer season, the home is refilled with an entirely new throng of thousands of bold restless toilers eager to let not one moment of their brief existence go unfreighted with some act of devotion to queen and the common good. While with the idleness of winter their life-cycle is somewhat augmented, and a few, perhaps,

never learn menial labor, the older bees are relentlessly but gradually lost to the cluster. Before the flowers of spring bring a welcome reprieve, best stocks are more or less depleted; consequently, to have an active force of young bees ready to replace the few feeble survivors, it is imperative that brooding commence without delay. This will occur naturally only when a plentiful store of honey is accessible. This is always the deciding factor in profitable and consistent spring feeding.



FIG. 1.—The four sides of case are hinged together.

There is always one time when winter and spring feeding is in place, and that is when any colony is without stores.

Ft. Smith, Ark.

A FOLDING SPRING PROTECTION

BY H. HARLEY SELWYN

I am sending some illustrations of a spring protection case I have had in use for nearly six years now, and which has proved very satisfactory. The framework holding the heavy grade of roofing-paper is dressed lumber of ⅞-inch thickness, and the four pieces hinge with cheap strong hinges. An entrance-block crosses the front of the hive and holds up the shavings and also keeps the case the required distance from the front



FIG. 2.—It is not difficult to pack each hive snugly.

of the hive. Each colony is packed on its regular summer stand after being moved out from the cellar. The stands are made of 2 x 4-inch scantling, with a graded light board in front. This may all be seen from the picture. Over everything is a heavy wooden cover which may be built either of rough or matched lumber as you wish.

A special feature of this style of spring protection case is that it can be laid out flat when stored away, and so will take up practically no space. There are 100 of these cases in use in our yard, and they all go in a lean-to not much bigger than 6 x1 0 feet.

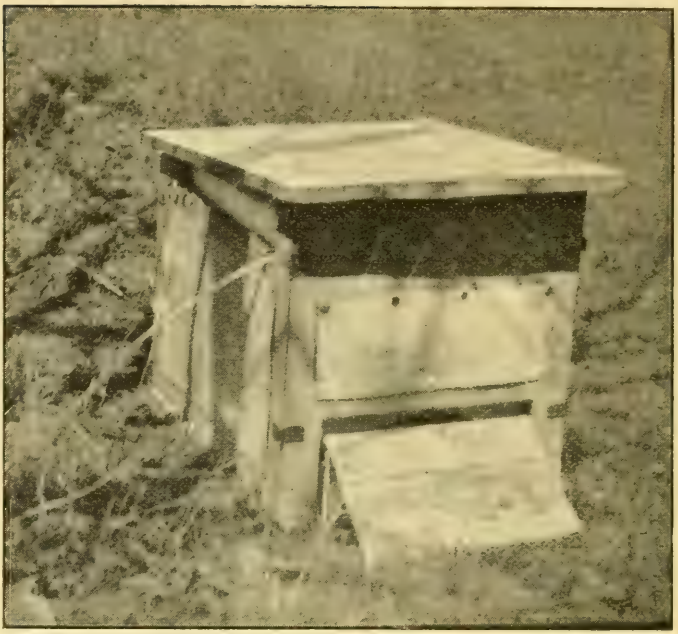


FIG. 3.—The spring case furnishes ample protection against blustery weather.

In one day I have packed a hundred colonies with shavings, and removed them equally fast later in the season when the disagreeable blustery weather had passed.

The views show, first, the case in parts; next, being placed about a hive; and, lastly, the shavings in and cover on.

Kirk's Ferry, Quebec.

BUILDING UP WEAK COLONIES

BY B. KEEP

"Build the colonies up strong and have them ready for the honey-flow."

That sounds good; but how shall I do it? asks the inexperienced person; and many of those not so inexperienced are turning that same question over in their minds, and quietly seeking a satisfactory answer. It is one of the peculiarities of beekeeping, that so frequently it is impossible to accomplish what is desired. Conditions, whether known or unknown, or unnoticed, serve to control events in spite of the most intelligent human intervention.

The foundation of successful beekeeping is a good working knowledge of the natural instincts and ways of the bees, and a logical adaptation of methods so as to harmonize with those instincts, and guide them to our advantage.

The various methods of "building up a colony" have been brought together here in a brief way so as to be available to the reader who may have limited means of information.

The natural increase in a small colony of bees is necessarily slow, even when all conditions are favorable. Consider for a moment that there are household duties to be attended to within the hive which require the constant attendance of a body of bees which is all the time getting smaller. There is the warming, feeding, and capping of the young brood; the feeding of the drones and the queen, housecleaning, propolizing, guarding, etc.; so that, if there is to be any increase in numbers these bees must not only care for and rear others to take their own places, but also many more for the increase.

It is well known that any shortage in the food supply, whatever the reason, immediately curtails the activity of the queen. One of the first requirements, therefore, is to know that there is an ample supply of food in the hive, or, if there is a shortage, to supply it at once—not in one great deluge, which is not nature's way, but steadily and in moderation. Thus we set up a good imitation of natural conditions of food supply.

Feeding is for the purpose of making "times" less "hard," and creating among the bees feelings of hope and confidence which natural circumstances may have prevented. Apply the figure to ourselves, and observe how much better we work, and how much more we accomplish when hope and confidence keep us company.

The natural and very logical habit of keeping the brood-nest as nearly as possible solidly spherical, and the refusal of the queen to deposit eggs much if any beyond those limits, gives us the opportunity to place empty comb space within those limits where the queen can and usually will get busy very promptly—in fact, laying just that many more eggs than she would under the original condition. There is need to be careful, however, that weather conditions be settled and warm; also that the colony shall have bees enough to carry on the added work, or this "spreading of brood" should not be done.

The weakness of a colony is very often due in the first place almost entirely to the queen's failure to produce brood sufficient to keep up the population. This can be determined partly by her appearance and movement, and partly by the proportion of brood to adult bees in the colony. A prolific queen will keep a much larger proportionate amount of brood than will a poor queen. It follows naturally that a new queen will be the proper remedy. A young queen will give the house bees all they can do, and they will, perforce, have to work harder with consequent good results.

Too much house room is just as bad for bees as for humans; a small family in a big house has difficulty in keeping warm, and the empty rooms have a depressing effect. Twenty people in a small room vote a meeting a great success, while the same number in a big room say "there was no enthusiasm, there were so few there." Then, too, the small room gets pretty warm, perhaps, while the big room is too chilly for comfort. Therefore divide the brood-chamber by a padded division-board so as to give the bees an apartment suited to their numbers.

Feeding, spreading brood, and requeening, together with adapting space to bees, constitutes about all that can be done toward building up a single lone colony; but when there are other colonies available there are other means of helping the weakling.

When a man is poor, the best way to overcome the deficit is to get money. Fortunately with bees such a proposition is not so silly, and we can put the idea into practice by taking from a rich colony, which can afford the donation, a frame of sealed brood (which will impose no additional labor upon the weak colony), and giving it, with the bees which may be on it, to the colony to be helped. Such a frame with bees may be slipped in at one side of the brood-nest (not in the middle), and there will seldom be any disturbance. By carrying this operation to the limit, a full-sized strong colony could be built up in about fifteen minutes; but it must be remembered that each frame of brood taken from any colony means just that much setback to that colony, so that what is gained for the weak colony is lost somewhere else.

A good strong colony with a young queen may be able to give up two frames of brood and bees during the season without noticeably affecting their prosperity. If no surplus is expected from such a colony, then it might furnish ten frames of brood, or more, in a season.

There is another method of building up a weak colony, but which is not to be recommended for general practice; and that is, to exchange stands, a weak colony with a strong one. This operates by the field bees going home to the old stand which has then the weak colony. There is risk in this of starting a fight by which more would be lost than could possibly be made up in any way. The result would be two weak colonies instead of one.

There is another way of dividing the bees of a strong colony with the weak one by setting the weakling on top of the strong one with a queen-excluder between, and after a few days setting the under hive off upon a new stand. This is known as the "Alexander method." This operates by giving the weakling the larger proportion of the adult bees, and the hive upon the new stand has all the brood and the young bees. The large amount of brood continually hatching soon builds up the colony on the new stand. This method requires a knowledge of how and when to do it, which makes it necessary to be posted on Mr. Alexander's directions.

These expedients are possible only where two or more colonies are available. There seems to be a point in the number of population above which things go on amazingly on a high tide of prosperity. On the other hand, when the population falls below that critical point there seems to be a drag to every thing; stores disappear, brood diminishes, and a general atmosphere of discouragement can be noticed when the hive is opened. A weak colony is a pathetic sight to the owner.

As a safe suggestion, the beekeeper

should have a clear idea of just what he is expecting to gain by any particular manipulation, and should look both ways before he takes a step.

There is one bit of advice which is always in order; and that is, acquire the best possible theoretical knowledge of beekeeping by reading—yes, studying—books upon the subject; and if one desires the greatest satisfaction, do not stop with one book but become familiar with all the best writers. If one cannot compass so much, then by all means make the A B C and X Y Z the textbook and guide. There is this great advantage with this book, that it is a cyclopedia of the art and science of beekeeping. It is not the exponent of one man's theory or practice, but is the cream from all.

Lyndhurst, N. J.

AMOUNT OF SYRUP NEEDED FOR DRAWING OUT FOUNDATION

BY GEORGE T. WHITTEN

As there appears to be no end to the discussion on the subject of stimulative feeding I will add more. It is advantageous in any case where there are bees enough to keep the brood-nest warm enough to hatch all the eggs that are laid, or when artificial heat can be supplied; otherwise, in almost all cases it is a waste of time and good material.

A good queen will lay all the eggs that can be cared for, and many more in case of a weak colony. The queen will continue to expand the brood-nest at any time when weather conditions are favorable; and unless means are provided to keep the hive warm by bees or artificial heat, the eggs simply chill and do not hatch, yet the queen continues her work.

The trouble with most of us is that the colonies get strong enough for good work just too late for the honey-flow. They need protection more during March and April than at any other time of year. My bees that are kept in the house build up very rapidly during February, March, and April.

I have one queen that has laid almost continuously, summer and winter, for nearly three years.

I am quite sure that a strong colony will draw out six frames of foundation half way on one quart of syrup. They will draw them out to a considerable extent after being transferred, before being fed any thing; they utilize the food taken with them when transferred, and that, with the amount of wax in the foundation that they use for cell-building, will enable them to draw out the cells to that extent.

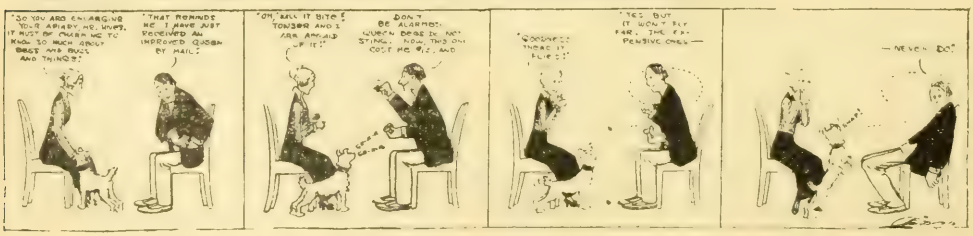
There is surely no mistake in the statement made by the editor, page 794, Oct. 15, and referred to by J. E. Crane, page 52, Jan. 15. Bees will do that, and even better, in some cases; but after they get the cells drawn to that extent it requires many times that amount to finish. They work the midrib out very thin when they first start to build comb when there is not much honey coming in. Later they will vary the thickness in proportion to the amount of stores coming. This I have noted at all times.

I have transferred bees many times in winter on to foundation when I was sure they could get nothing except what was given them, with practically the same results each time.

In my opinion, from experiments in the use of different foods for bees, there is nothing as safe, and that will give as good results, as sugar syrup. When feeding syrup I have no trouble, but have more or less when honey or candy is used. The condition of the colony and the season have much to do with the feeding problem.

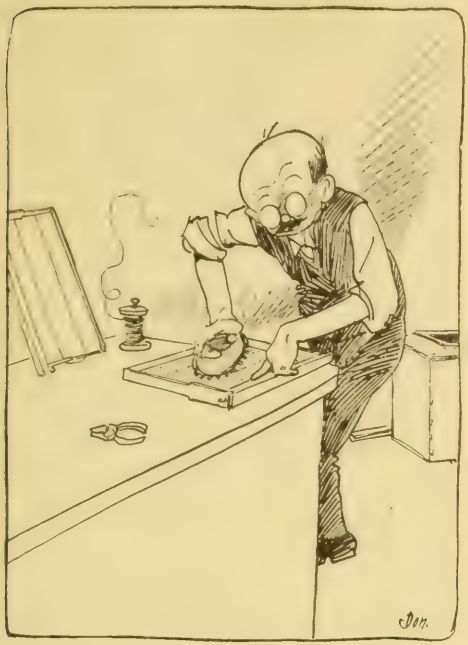
Hartford, Ct.

DIANA DILLPICKLES HAS HER TROUBLES AGAIN IN "HER BEEKEEPER BEAU."



Courtesy Cleveland *Press*.

Heads of Grain from Different Fields



The Backlot Buzzer

Now's the time of year when Grandpa and the bees both peep out of the front door, and wonder when the thaw is coming.

Trapping a Bee-eating Skunk

I was interested in the article on page 22, Jan. 1, by H. R. Boardman, but I was surprised that Mr. Boardman was so long in finding out how much damage skunks do. Some years ago I had four bee-yards, and had each yard fenced with a tight board fence 5 feet 4 inches high, surmounted by two barbed wires. I always kept a box trap at each yard, as the skunks would dig under the fence and then devour the bees by the quart, and sometimes by the gallon, I believe.

The reason I used a box trap is this. When I catch the skunk in a box trap I take the trap (skunk and all) and sink the trap in water until the skunk is drowned. There is no scent whatever.

The best bait I know of is an egg, because other animals will not bother it. For instance, if I bait with fresh fish the chances are two to one there would be a cat in the trap within half an hour after sunset. So by the time Mr. Skunk would get around the trap would be closed.

How many bees can a skunk eat in one night? A few years ago I drove out to one of my outyards about seven miles from home, in November, and there was about three inches of snow. I found a skunk had dug a hole under the fence and had sat in front of one of the hives on the stand so long that the snow was melted. He had scratched a strip of paint off the front of the hive about two inches wide clear across the entrance. I took some steel traps and tracked him about one mile, intending to trap him at his hole; but he went in a crack in the ledge which was several hundred feet long. So there was no chance to catch him there.

Then I went back to the beeyard and set the box trap near the hole under the fence. The next day I had him. He got into the trap before he got to any hive. When I skinned and dressed him there was a teacupful of undigested bees in his stomach. This was about 36 hours after he ate the bees. He weighed over 11 lbs., and I got over three pints of oil out of him. Of course this was a very large one.

West de Pere, Wis. PAUL SCHEURING.

Will Granulated Honey in the Cellar-wintered Bees do any Harm?

I am writing you concerning a condition the seriousness of which is yet undetermined. Our bees are snugly quartered in three large cellars, and are apparently doing well; but at the time of cellaring we found an unsual amount of granulated honey in the hives, and we are at a loss to know whether the bees can or cannot use this granulated honey after the liquefied is gone, and before time to remove them from the cellars. We realize that bees will not winter out on summer stands successfully in Utah on granulated honey, but do not know what results will develop from it in the cellar. Since first beginning to cellar our bees the granulation has been very slight until now, but we feel a little uncertain this time.

The cellar temperature of 45 degrees F. plus the additional warmth of the bee cluster has had a tendency to liquefy slightly the granulation since cellaring; and the granulation is less in strong colonies than in weak ones, and is less in the early flow of honey than in that gathered toward the end of the season.

Beaver City, Utah, Feb. 2. G. W. GIBSON.

[Granulated honey will do no serious damage to the bees in the cellar. Of course we prefer sealed liquid stores; but in the average cellar there is sufficient moisture so the bees will be able to take care of the granulated honey they have. Should the cellar become very dry, which is not likely, they would not be able to use granulated stores like liquid honey in the comb.

For winter feeeding Mr. J. E. Crane recommends granulated honey in place of candy when regular combs of sealed stores are not available, and Mr. Crane is good authority.—ED.]

Shipping Queens by Freight to Australia

Last season I tried to get queens through the post from the United States, but they all arrived dead. Recognizing the futility of further attempts by post I arranged to have a dozen baby nuclei sent by freight with a queen in each. They arrived in due course, reaching here just before Christmas, in the heat of our summer. They were packed in well-ventilated boxes measuring about 10 x 9 x 5 inches, and each box contained two combs of honey. They had been very carefully put up, and I do not think any thing further could have been done to ensure success unless it was the addition of a water-bottle.

I am not too keen myself on giving the bees water *en route*, as my experience and that of my sons makes me rather dubious whether it is beneficial or not; but I mentioned it because the editor of GLEANINGS has appeared to advocate it. When I unpacked the bees, two nuclei had died outright. One of these had consumed all its stores, and four others had about half the bees and the queens dead. Of the other six alive, some were pretty weak, and two have since died, leaving four out of a dozen. They are good bees, good honey-getters, and very quiet.

MAJOR SHALLARD.

S. Woodburn, N. S. W., Australia.

Bees Starving with Honey in the Hive

Will you advise me what caused all my bees to die in the hive during present winter, queen and all? They had plenty of stores, and were in a double-walled hive which was also protected by a shed which had a clearance of about 6 inches around the hive, which clearance was covered and stuffed with burlap bags, carpets, etc., so that they certainly could not have frozen. We did not notice them flying these fine sunny days, so we investigated, only to find them all dead. There is no evidence of foul brood.

Would you recommend destroying combs now in the hive before putting in new bees?

Pittsburg, Pa. WM. MCGALL.

[From our own experience with bees wintered out of doors in chaff hives this year, as well as other reports which are similar to yours, we are led to believe that your colony starved to death with honey all around them. This condition was brought about by the long steady cold stretch of winter weather which we had during the past two months. While there was plenty of stores in the hive, yet the bees were so stiffened by the cold that after they had eaten all the honey within reach they were unable to move over, and, consequently, starved to death.

If you are sure that there is no disease in the combs there is no reason why you should not use them again.—ED.]

Substitutes for Pollen should be Fed

Why use sweet of any kind in a pollen substitute? Mix it according to my method, page 313, April 15, 1914, and I will guarantee that the bees will do the rest in a proper manner.

I have fed flour for twenty-five years with good results, placing it in the beeyard in shallow boxes, rye, graham, shorts, and bran thoroughly mixed. The bees work it as readily as they would natural pollen or even honey. There is sufficient natural oil or starch in the mixture that the bees have no trouble whatever in loading up quickly. I doubt if the bees use any honey in the manipulation of this substitute or the natural pollen, other than that naturally contained in the blossom producing it, L. L. Langstroth to the contrary. True, it is very sweet to the taste, yet is readily crumbled like pellets of flour.

Union Center, Wis. ELIAS FOX.

Painting Hives is Economy in the End

I take care of over 250 colonies of bees, and have watched every point in bee culture for years. I began when young, and am now 55 years old. I have read that Dr. Miller does not believe that painting his hives is an act of economy.

I want to say to my bee-brethren that, if they make their own hives, and are not willing to use all the paint necessary to protect the wood, they should paint the inside of the hive first. This will prevent the sides and ends of the hive from taking up the moisture from the bees on the inside, and thus prevent the sides from curling out. I favor painting on both sides with good oil paint. I believe this is economy in the end. N. M. GOOD.

Grand Valley, Colo.

Place to Scratch Matches on the Bellows of a Smoker

I have an improvement on the smoker that is so simple that one might smile, and perhaps feel a little disgusted over it; but after using it a few times that feeling will disappear.

Take a little very thick paint; spread it on the lower right-hand side of the bellows, next to the fire-pot. Cover the lower half, and then fill it with coarse sand. After it is thoroughly dry you will smile every time you scratch a match on it.

Bradentown, Fla. D. W. ABBOTT.

Boards to Protect the Winter Entrance

I notice by Jan. 15th GLEANINGS that the entrance to those large quadruple winter cases on the cover picture contemplates using a board for a runway to the entrance instead of leaning it up in front. I may say that in this locality, where snow gets quite deep, it seems to be a great advantage to lean the board up in front. It prevents snow blocking the entrance, as the snow slides away from the entrance, and it never packs solid under the board. After the first day it does not seem to annoy the bees to have the board there. I am never the least concerned about the entrance if snow is three or four feet deep, as I know they will be all right so far as the snow is concerned.

Forest, Ont. I. LANGSTROTH.

Lead Pipes in Honey-tanks

We intend to put some kind of spiral pipe in our extracting-tank next year, so that we can turn on the steam and heat the honey enough to prevent granulation. This would be a convenient way to heat bulk comb just before packing it. Does any one know whether the use of lead pipes would affect the flavor or quality of the honey?

Corpus Christi, Tex. E. B. AULT.

[We have never used lead pipe in connection with honey. We should be afraid, however, that it would not be safe. Can any of our readers report?—ED.]

Has Tried Eight Hives in a Case

Dr. Miller, p. 95, Feb. 1, suggests trying quadruple winter cases with hives two deep, eight in a case. I tried this two-story plan one year, with the result that in the spring nearly all of the bees were found to be in the lower hives. Perhaps it would work better if the entrances were turned in different directions.

Valparaiso, Ind. E. S. MILLER.

In opening a colony of bees to note condition a few days ago I found several combs badly mildewed, especially on the ends toward the back of the hive. Will this condition bring any bad results? or will the bees clean it up later?

Quite a number of combs are white with mildew, and I find nothing after searching the A B C and X Y Z.

Morganton, N. C. L. E. WEBB

[You need have no fear of the mildew doing any harm. As soon as the weather turns warm enough for the bees to fly every day and to build up they will clean up the combs and use them, and without any bad effect on the bees. Mildew is found very commonly on combs in hives in the spring of the year, especially where they have been wintered in a damp cellar; but the same condition is oftentimes found in outdoor-wintered colonies as well.—ED.]

My Dream Woman of the Bees

BY GRACE ALLEN

She works and she sings, like her bees with brave wings,
Exultantly eager and free,
Unfolding in beauty like flowers of the sod
That flood with their fragrance the sunshine of God—
This woman I'd like to be.

A lover of trees and birdsongs and bees,
She treads where the poets have trod;
Like Martha she labors, and still like the sweet
And quiet-souled Mary she sits at the Feet,
And listens alone to God.

Nashville, Tenn.

A. I. Root

OUR HOMES

Editor

By their fruits ye shall know them.—MATT. 7:20. There is no other name under heaven.—ACTS 4:12.

Since giving place to the letter from friend Boone on p. 958, Dec. 1, I have received several letters of like tenor, some of them severely censuring church members, ministers, and the Christian religion generally. I cannot give space to these letters, for I try hard to have not only every page of my department but *every line* contain some thought that will benefit some one; and I feel sure no one will be helped by giving space to talk that was common in years past, but which, since the great strides of present Christianity, are now mostly dropped and forgotten. I replied to one brother (who sent me quite a long letter) on a postal card, and quoted our text above, and asked him if he was keeping track of the great work now being done by "Billy Sunday." For fear there are others of our readers who are also not keeping posted I have made some clippings from the *Sunday School Times* of Jan. 24.* Of course the brewers and distillers are fighting Sunday with money unstinted, and every thing else; and it seems they have been telling of the *$48,000* that the city of Scranton, Pa., expended in the Sunday crusade. A business man made an extensive summing-up of *expenses,* and also of *benefits,* and gives the whole in the *Times,* and then asks, "Did it pay?"

Below are a few of the points he makes. I know the figures are staggering; but *while I write* the work is being *more* than duplicated in the great city of Philadelphia.

Superintendent Hopper, of the Lackawanna County Sunday-school Association, reports the county membership increased from 35,000 to 47,000, and the most significant fact of the 12,000 gain in members is that *ninety per cent of them were men*—men who could qualify in organized adult Bible classes.

That Billy Sunday reached men is evidenced by another fact. At the last meeting in the tabernacle for men, Sunday, April 19, at 2 P. M., Mr. Rodeheaver requested that all men who had stopped "hitting the booze" since Mr. Sunday came to the city raise the right hand, and immediately hands "shot up"—men vied with each other in trying to raise their hands higher. How many were there? From where the writer sat, on the steps of the platform, it seemed as if almost every man in that audience of 10,000 men had his hand up. From competent judges it was estimated that no less than 5000, and probably 6000, had become total abstainers. Here was visible evidence, and our hearts still glow at its remembrance. A conservative estimate places the number of total abstainers in this valley as the result of the Sunday campaign at not less than 10,000 men, saying nothing about the women.

Some people say that the Sunday campaign was a failure. Who say this? Brewers and saloon-keepers. Can we refute their statements? The report of the internal-revenue collector for this district is of value. He reports for the first six months of this calendar year 17,000 gallons less of whisky consumed than in the preceding six months; 25,000 barrels of beer less than for the same period last year, and a corresponding decrease in tobacco.

If the 10,000 booze-quitting men spent an average of $2.00 per man each week for fifty weeks in the year for intoxicants (we have numerous personal testimonies of booze-bills that range from $20 to $150 per month), then for an investment of $48,000 we have diverted $1,000,000 per year from the hotel and saloons into honorable and legitimate business channels, and into the churches. You say these figures are too high. *They are not too high.* Well, cut the amount in two; was it worth $48,000 to divert $500,000 into legitimate business channels and into the churches?

The other day the writer asked an executive auditor of one of our largest corporations what effect the Sunday campaign had on their employees.

"Our employees have been transformed," he replied. "It was the greatest institute for efficiency that we have ever known. In efficiency the company has gained in one month several times the cost of the tabernacle, and in actual cash from loss of time, leave of absence (intoxication), sickness (dissipation), in any one month an amount equal to the entire cost of the tabernacle."

If you are reading the great city dailies you are probably aware that intemperance, crime, destitution, and suffering are increasing at an alarming rate. In the city of Cleveland, Ohio, they are calling for more policemen (because "hold-ups" are getting so common even in daylight, etc.), and the city replies there isn't any more money to pay for additional police. With wars and increasing intemperance what *is* the *whole wide world* going to do?

This is not only what they are *going* to do, but *are* doing. They are going to wake up, and listen to God's appointed prophets, and repent, and reform.

Now then! Will these friends (these *few* friends) who ridicule my faith in prayer, make sport of the Bible, call "deacons" and "preachers" hypocrites, etc.? Will these friends give us an account of what *infidelity* has done since the world began, in the way of reform? Are they not in about the same predicament as the friend I have mentioned (who was going to convince me by argument that there was no such thing as a queen in a beehive), when I opened a movable-comb hive and *showed* the queen depositing her eggs?

Our blessed Bible tells us of the time when the dear Savior spoke to the boisterous winds and waves; and at his word, "Peace! be still," "there was a great calm."

* I hope every friend of temperance and righteousness, if he doesn't subscribe for the *Sunday School Times,* will at least send for the issues of Jan. 24 and 31, the latter being the temperance number.

Only those who have been out on the great ocean can fully realize what a stupendous miracle this was. No wonder the disciples "marveled" and said, "What manner of man is this, that even the *winds* and the *seas* obey him?"

Now listen to your old friend when he tries to assure you that the present wars, intemperance, and crime are all subject in like manner to *his* command, and that "there is no other name under heaven" that can quell this boisterous world than that of Christ Jesus, who spoke peace to the troubled seas ages ago. And this is the message that God's appointed "Gideon," Billy Sunday, is bringing, and yet the whole world *marvels* to see this one little man the means of bringing peace and joy into the homes of untold thousands, and of making a great city like Denver, Colorado, "vote dry" in spite of all the trained minions of Satan with their ill-gotten millions.

BILLY SUNDAY, THE ANTI-SALOON LEAGUE, ETC.

To give you a brief glimpse of the great work that is now going on to usher in God's kingdom, I make two clippings—one from the *Sunday School Times* and the other from the *Baltimore Sun*. I verily believe Sunday would end the war if he were given a chance, and if all good people would stand by him, as they seem to be doing now, wherever he goes.

To make a state or a nation dry requires votes. Votes cannot be secured until sentiment is ripe. It is by the creation of dry sentiment that the evangelist renders extraordinary service to his country.

In the recent struggle for prohibition in Ohio, more than five hundred thousand dry votes were secured. Mr. Sunday has conducted many extensive campaigns in that state. And it is perhaps the most thoroughly organized state in the Union from the Anti-saloon League standpoint. Wayne B. Wheeler, Superintendent of the League, recently said:

"Billy Sunday attacks the liquor business in the most aggressive, bold, and defiant manner of any man I have heard in years. Many people are aroused to action only when a speaker hits an evil hard, then jumps on it and literally pulverizes it with argument and invective and impassioned oratory. Billy Sunday makes the people feel that the liquor-traffic is the worst crime of our civilization. Some of them may cool off; but many stick, and they furnish good fighters in the ranks of any organization that is making an effective and aggressive fight against the saloon."

On November 3, 1914, Colorado voted dry by a majority of 11,000. Two years ago the same state voted wet by a majority of 40,000. Chief among the elements that entered into this campaign was doubtless the well-nigh perfect organization of the Anti-saloon League, reaching to every voting district in the state, together with the hearty co-operation of all other anti-liquor agencies.

Then came Billy Sunday, arriving in the state at the psychological moment. In June he conducted a campaign at Colorado Springs, in El Paso County, where the wet majority two years ago was 2700. The dry majority last year was 4000. For six weeks previous to the election Sunday stirred up Denver. The dry vote there was increased from 11,000 two years ago to 29,000 last year.

"There are little frizzled-top sissies not yet sprouting long dresses who know more about vice than did their great-grandmothers when they were 75 years old.

"The girl who drinks will abandon her virtue. What did Methuselah know about smoking cigarettes?

"If any one ever tells you that you can't be virtuous and enjoy *good health*, I brand him as a low, infamous, black-hearted liar."

SUNDAY'S CONVERTS 1184.

At the morning service 157 publicly acknowledged their faith in Almighty God in answer to Sunday's summons for converts. At the afternoon service Sunday ripped off his collar and tore open his shirt, and with the perspiration dripping from his face and arms he lashed, hounded, quartered, and flayed the thousands of sinning men seated before him until he stood before them triumphantly extending God's blessing as they rushed up to the pulpit for forgiveness. There were 551 converts this afternoon and 476 to-night.

Morning, afternoon, and night services were practically continuous. Thousands were gathered before the tabernacle doors at daylight; thousands remained inside the immense auditorium for the afternoon service, and thousands remained after the afternoon service for the night service. None stayed away on account of the rain.—*Baltimore Sun*, Jan. 18.

PEACE ON EARTH, GOOD WILL TO MEN.

I have been not only praying for, but *expecting*, something like what is outlined below, which I clip from the *Christian Herald* of Jan. 20. May the Holy Spirit go with it.

CONGRESS TAKES UP WORLD-PEACE.

On Jan. 2 Hon. Charles F. Curry, of California, introduced in the House of Representatives the first measure ever placed before an American Congress in the interest of world-peace. It was in the form of a joint resolution which reads as follows:

"JOINT RESOLUTION

"Authorizing and empowering the President to invite all nations to send delegates to a convention to provide for disarmament, for the creation of an international legislature, an international court, an international army and navy police, and for other purposes.

"*Resolved by the Senate and House of Representatives in the United States of America in Congress assembled*, That the President be, and he is hereby authorized and empowered to invite all nations to send accredited delegates to an international convention to frame a constitution for submission to the nations for ratification, said constitution among other things to provide for an international legislature to enact laws for the government of the intercourse between nations; to provide for an international court to adjudicate the differences between nations; to provide for the disarmament of all nations; to provide for an international army and navy to be used as international police, and when so ordered to enforce the decrees of the international court; to provide that each nation shall be protected in its right to retain and maintain its own form of government, and to exercise exclusive authority over its internal affairs; and to provide further that each nation shall be permitted to maintain an army and navy only sufficiently large to police its own territory."

On January 5 the same resolution was introduced in the Senate by Hon. Robert L. Owen, of Oklahoma.

The resolution has been referred to the Committee on Foreign Affairs and ordered printed. It is the outcome of a widespread agitation of the peace movement and of memorials, circulated by the *Christian Herald*, which have been numerously signed and mailed to members of both Houses and the President within the last few weeks.

"THE MAILED FIST" OR "THE PIERCED HAND."

Our long-time friend from away off in New South Wales, Herbert J. Rumsey, sends us a clipping from the *Sunday Sun* of Dec. 13. This edition of the *Sun* was to be mailed to the soldier "boys at the front," and a Protestant minister prepared the sermon from which I make the following extract:

THE SYMBOL OF THE GOSPEL IS A PIERCED HAND.

The pierced hand is the symbol of the world empire of Jesus. During the last few months we have been made painfully conscious of another symbol of world empire—the mailed fist.

We are looking forward to the time when the peace of God which passeth all understanding will fall on this shot-shattered world, when the daisies will bloom on the battlefields that are now red, when the birds will build their nests in the cannon's mouth. There will come an abolition of militarism, new and better international relations, a purged national life, a splendid extension of the kingdom of righteousness and peace and joy. Do you believe it? Are you not fighting for it? To-morrow Bernhardi's law of might will pass, and the world will learn a new but an old word, "Blessed are the peacemakers." A recent illustrated paper contained the picture of a ruined church smashed by the red anger of the Germans. Underneath were written the words, "The cross is not damaged." There among the dust and ruin and horror of it all was the cross, erect, unbroken, and sublime, which things are a parable. We, like Constantine of old, see the cross outlined above the clouds, and reverently cry, "Hoc signo vincamos"—"By this sign we shall conquer." So, above the smoke of battle rises mystically the sign of a cross. *Across Europe's bloodiest field there beckons a pierced hand, and as from afar, yet with a note of present confidence, there sounds a voice of triumph, "I, if I be lifted up, will draw all men unto me."*

No one can read the gospels without reaching the conclusion that Jesus anticipated a ministry that should be wider than any Jewish limits. He who is reckoned by some to have been a peasant in an obscure province in a far-off age, who wrote no book, who built no church, who organized no army, who left no court, foresaw a ministry which was to be as wide as the world. As a peasant, Christ died when, as men reckon years, he had scarcely reached his prime.

Not a golden hair was gray
Upon his crucifixion day.

Concerning his death, he said, "I, if I be lifted up, will draw all men unto me." The great sayings of Jesus have stood the test of all criticism, and they tell us that throughout his earthly ministry Christ had the outlook of approaching lordship over all the nations. The teaching of Jesus consistently pointed to the fact that his death and world empire are forever associated. His death was to be the secret of world empire. When the one grew vivid in his thought there rose the vision of the other. And that fact should be thought much of by every man and every woman who is interested in the world empire of Jesus Christ. So far as our present experience has gone, it must be granted that historic Christianity answers all the ends of true religion. It sweetens life; it creates saints; it inspires missionaries; it brings gifts of peace to dying hours; it lifts men by the energy of its grace to better living. It promotes righteousness, peace, and joy. It strengthens all the anchorages of morality. It brings light amid the shadows of life, and, in the darkest valley, the vision of the eternal God. Wherever the gospel has been preached, men have learned a new pity for human pain, a charity that cares for the helpless, a patience that watches over broken and failing life. The gospel supplies new moral ideals by which to shape life, new forces by which to touch life.

May God hasten the day when the whole wide world shall have so little use for cannon that they may prove a safe nesting-place for the innocent birds.

SAN FRANCISCO AND THE EXPOSITION, ETC.; FROM OUR LONG TIME FRIEND W. A. PRYAL.

My dear Mr. Root:—One of your correspondents living in this state makes a very broad and unwarranted charge against San Francisco, p. 44, that I believe should not go unchallenged. I am a native of that city; and while I must acknowledge that many things are done there that are reprehensible, still it is not altogether the bad place that too many narrow-minded persons are too ready to dub it. Few cities as large, and made up of such a cosmopolitan population as she possesses, are more orderly, and as well-managed, as the City by the Golden Gate. It is a city of culture and refinement, even if there is a large sprinkling of elements that cannot lay claim to such designation. Of course, too often the worst element in a community raises a lot of dust that is disgusting to the better classes; but I find that the latter element is to blame, in the majority of cases, in not correcting such abuses. If they would take more civic pride, and vote as their best interests dictate, there would be a better order of things. I have noticed that in nearly all our big cities, even in this elegant city of Oakland, many people of refinement and culture refrain from going to the polls on election day as they should, and voting for suitable men for office, or supporting wise legislative measures when they come up on either initiative or referendum submissions.

Under the old order of things too often bosses who had their origin (and most times instructions) from some saloon saw that their cohorts were rounded up and voted to carry things for the bosses. In this way most of the office-holders were unworthy men, and many of the measures enacted were what they should not be. But the saloon is "getting on to itself," and it is no longer the factor that it was. And this is a good thing for everybody. I have long held that it should be a criminal offense for a barkeeper to use his place of business for political purposes. It is a well-known fact that some saloons are worth thousands and thousands of dollars to the owners as rendezvous for a gang of politicians. This should not be. Make it criminal for such goings on. And perhaps, too, it would be well to close such places for a certain period, say a week or more before a general election, and shorter for minor ones. All this applies to places where out-and-out prohibition cannot be brought about. In time I believe men will not want to be seen going into a whisky dispensary, even if they are not prohibited from so doing. I believe, from what I see wherever I go in California, there is far from being the intemperance there used to be. This is brought about by several causes. It must be said to the credit of some of the saloon men that they will not sell strong drink to men who are likely to over-indulge. But the great

majority of such liquor-dispensers are not prone to do this. They are too greedy for the dimes and nickels, and every thing goes with them.

I have long been against the saloon; but I cannot bring myself to forcing them out of business without giving them a chance to save the capital they have put into the business. It savors of the worst kind of robbery to do so. Some plan should be devised to recompense them. It would be perhaps cheaper for the state to do this. After a certain number of years all saloons *must* cease doing business, a reasonable sum to be paid for their fixtures or any leasehold a saloonkeeper may be obligated to hold to. By the giving of ample time, all stocks could be suitably disposed of, and the barkeepers have sufficient opportunity to seek other employment. In this way many of the saloons would virtually close out before the time set.

Here in this state the prohibition measure was lost by the stubbornness of those who initiated the movement. They did the cause much harm. It was not lost because the people are in *favor* of the saloon. It was too drastic, and many of our clergymen were not in favor of the proposition as it was submitted to the voters. It aimed to destroy the grape-growing industry in California—something that the people here take great pride in. I believe that, if the proposition had excluded the wine industry, the measure would have carried. I notice that henceforth the viticulturists of the state are not going to affiliate with the saloon interests. They will let the latter take care of themselves. So, I believe, when the question comes up again it will not cut horizontally. It will make reasonable distinctions between what is temperate and what is intemperate. This is well. There's reason in all things. Get at the sin of the thing—strike it—kill it.

What the temperance folk have to be thankful for (and this is where it can be proved that the voters of the state saw the justice of the proposition), was that, when they voted down a counter-proposition of the saloon people, to prevest any further meddling with the liquor question for *eight years* after any election when the question is voted on. If this had carried it would have been a great victory for the saloons. It was lost, as I firmly believed it should have been, and I so voted. The prohibition matter is now being agitated in our legislature, and it may be submitted to the people in some milder form, and finally be ratified in 1916. Let us trust it will be a rational measure.

Now, Mr. Root, what I was going to call your attention to is the last paragraph of the first column on page 44. Any one who would maliciously give the impression that "it is no uncommon thing to find dead bodies floating in San Francisco Bay" bears false witness against his neighbor, and commits as great a sin as if he were a confirmed rum-guzzler. I have lived in sight of the bay mentioned all my life (over fifty years), and I know it as a fact that such a statement is untrue. That dead bodies are found floating in the bay is *sometimes true*. Some of them were suicides; some fall from off the shipping in the bay; some were fishers along the rocks or cliffs who fell in accidentally, and once in a great while one may have been the victim of foul play. But such victims are found in waters the world over, and possibly elsewhere to a greater extent than about the big city of San Francisco. And it would be the height of uncharitableness to say that a saloon man was responsible for such loss of life.

Do not believe for a moment that San Francisco is a dangerous place to go about in. One is perhaps as safe in moving about the docks on the water-front during the day time in that city as he would be on the best street in any well-ordered city in the world. This I know as a fact, as I have been about the wharfs alone and with friends on numerous occasions.

Then it must be remembered that, if the prohibition measure was lost, there was carried a law which will make the tenderloin portion of the city better than ever before. It is the measure known as "the red-light law." Some of the worst elements of the city tried hard to defeat this measure; but it carried, nevertheless. So, also, has the "blue-sky law," which is a good thing too. This will prevent rogues from fattening on the unsuspecting possessor of ready cash.

It must be remembered that at the general election on the 3d of last November women exercised their voting privilege as it was probably never exercised in any part of the United States before, and I am glad to know that our women did better than I had hopes of their doing; for on several minor occasions previously I thought they might have done better on some local matters that they had a "try at." So, on the whole, the out-and-out temperance people should be satisfied with the result when such good judges of the subject helped defeat the measure.

Did you hear of one of the sad features about the last prohibition fight in this state. It may be said to be only an incident, but the opposition will make the most of it. Mrs. Bidwell, the widow of a gentleman who in his day was a strong worker in the cause of temperance, and who was, I believe, at one time candidate for President on the Prohibition ticket, hired a minister of one of the denominations (he was highly recommended, and was in a measure an able man) to canvass the state as far as he was capable in the cause of the prohibition measure. He was not long "on the stump" when his ways were not very edifying. I believe the League wanted to call him down, but it was powerless, as he was hired by private means. Any way, this savory minister had a family somewhere back east; but, aside from this, he had an "affinity" here—the wife of a worthy man in one of the northern counties. Well, this alleged laborer in the Lord's vineyard boldly went about through the country preaching against the liquor traffic while he was openly living an adulterous life. Fine example! Of course I would not hold the temperance people responsible for such doings; neither it is any reflection on the church for having such black sheep. And how often things go wrong with the church, and the wicked escape! When the great fire swept over San Francisco in 1906, every church in its wake was completely wiped out, and some of them were very fine edifices; and yet something like six saloons in the burnt district escaped unscathed! It was very strange. I saw some of these places a few days after the fire, and wondered how they were saved. The fire seemed to leave them alone. One of the biggest wholesale wine places was in one of the best blocks that was saved. It was not that the liquor men had influence in having them spared—they (the saloons) were avoided(?) by the Fire King. In a few places I was told wine was freely used to quench the blaze. I presume whisky would not do, as it would add to the fury of the fire.

But the saloon business, as I have said before, is not as bad here as it formerly was. Dozens and dozens of saloons have had to close up, as there was not sufficient patronage to support them I don't think it is altogether on account of the hard times. It seems to be more because the drink habit is not as popular as formerly. Few men nowadays feel free to ask a friend to come on and take a drink with them. It was that social part of the matter that brought so many into the barrooms.

It is a matter of only a few years that the drink habit will die out. In the mean time, perhaps, with Christianlike prohibitive laws, the nefarious saloon will pass away. But drastic prohibitive measures which confiscate a man's life-long earnings I believe to be against God's laws. Lead the bar-keeper away from his bar. Let him see the evil he too often does.

I trust you will not do as your fair correspondent

would have you do—keep away from San Francisco and the big fair for the reason she sets forth. You will miss a big treat if you do. Come by all means during the year and see the fair. And if you come, be sure to visit me—better, be my guest during your visit. Mrs. Pryal and myself would be glad to have you and yours visit us. We have plenty of room in our fine new home, and we think we can make it pleasant for you. And it will give me pleasure to show you about, as we have a touring car and can get around in a very satisfactory manner. It was my pleasure, some sixteen years ago, to drive Mr. and Mrs. Thos. Wm. Cowan about this city and suburbs to see the sights. Let it be mine, too, to show you about this beautiful country.

Oakland, Cal., Jan. 11. W. A. PRYAL.

Many thanks, my good friend P., for the facts given us, and also for your very kind invitation; but Mrs. Root and I are getting rather old to take in expositions as we once did.

HEALTH NOTES

CANCER—CAN IT BE CURED BY DIETING, ETC.?

The following is from a friend whose wife died of malignant cancer, and who himself was beyond the reach of treatment ordinarily given by our best physicians. The letter, as you will notice, was written five years after he began dieting, daily bathing, exercising, etc. As you will see, there has been considerable criticism of T. B. Terry's claims, and I am glad to see him vindicated. And I am also glad of the valuable hints given, especially since they come from one who has been for long years a successful practicing physician.

"ALONE WITH GOD."

You may remember my writing to you shortly after your publication of a letter in your department of GLEANINGS from a "friend" whose name was withheld, who had treated successfully a lady afflicted with cancer of the breast without surgery or drugs. I asked his name and address. I was not surprised when you referred me to Mr. Terry. You also mentioned that you had been severely criticised for the publication of that letter. Now, Bro. Root, I am of the opinion that your critics should be criticised, for you did the right thing in allowing that letter a place in your magazine. I for one am extremely thankful to you for publishing it. Had it not been for that letter, I myself might have been numbered with those who have succumbed to cancer. I wrote to Mr. Terry, and he gave me his opinion, and some special advice. I was a tea and coffee drinker, a "tea drunkard," using about a pound of tea each month. Well, I went to doctoring myself with medicines, ointments, etc., and at the end of a year I was no better but much worse in every way. I had grown so desperate in my failure to find relief that I was ready for a surgical operation, but hesitated to use the knife. Then I made arrangements to go to a cancer specialist who used a killing plaster in taking them out. I still felt in doubt. I was "alone with God," and I had been much of the time since my companion was taken. I took the matter up with him most earnestly, and finally decided to get back to nature, and give her a chance. That was five years ago this month. I abandoned tea and coffee and all stimulants, pork, and all rich greasy foods, getting right down to the Terry diet as nearly as possible, only two meals a day. I had been eating three meals before, giving up medicines of all kinds, and, later on, sugar and salt in or on my food, using a little honey, and a little milk and cream. By the middle of July I had lost 30 lbs. of flesh, and was so weak I could with difficulty get about home with a cane.

I had taken up with the dieting a thorough course of hydropathic treatment, daily baths, internal and external, with hot fomentations for half an hour or longer over the cancerous places. This water treatment I kept up for a whole year, not missing a day.

By the middle of September I began to feel I was gaining. I was not so nervous, but more cheerful. My cancers were not so troublesome and sensitive. Well, to make a long story short I will say my cancers gradually were absorbed and disappeared, so there is at present no sign of them left—only a little sensitiveness sometimes over the places. My piles also disappeared by magic, and give no trouble. I am full of hope and life, like a boy, though perhaps more serious, for I am constantly "alone with God." So now, Bro. Root, don't blame yourself for having been so foolish, as some thought you were, for publishing Mr. Terry's letter.

I am "alone with God," Bro. Root, in other ways than material distance from many of my fellow beings. I'm separated from them in thought and habits of life. I cannot go over to them, to my old thoughts and habits of living, and they are slow in accepting my ideas or ways of doing. For instance, I called on a neighbor and found him sick in bed with a cold. He had been taking calomel and other "doctor's stuff." He asked me what I "took" when I got a cold. His idea was on medicines of some kind that would chase the "cold" out of the body, as you would chase the chickens or pigs out of your garden. I told him, "I take a fast, an injection, a good bath, go to bed, and let nature do the rest." That plan did not suit his ideas. I seldom go out to dine with a neighbor, for I cannot go back to my old dietary habits without danger of recurrence of some or all of my old ailments. If any thing is offered me to eat it is almost sure to contain salt in excess, and hogs' fat, both of which are bad for me. I'm urged to have a cup of coffee. "It don't hurt you." So I'm very much "alone with God" and his hand-maiden Nature.

Alone with God when I am weak;
Alone with God—his strength I seek;
Alone with God—for him I long—
Alone with God—he makes me strong.

Alone with God, I flee for rest;
Alone with God when evil pressed;
Alone with God I love to be;
Alone with God—he comforts me.

Alone with God, I struggle on;
Alone with God to gain my crown;
Alone with God—he takes my hand;
Alone with God to heavenly land.

Alone with God, no human near;
Alone with God, no one to fear;
Alone with God I love to be;
Alone with God—he comforts me.

Mentone, Ala. DR. C. F. PARKER.

HABIT-FORMING DRUGS, ETC.

In the Jacksonville *Times-Union* for Oct. 13, 1914, a full-page illustration is given to the matter of habit-forming drugs. Below is a clipping from the article, together with the lengthy heading:

AMERICAN DRUG FIENDS OUTNUMBER CHINESE; ONE PERSON IN UNITED STATES OUT OF EVERY 23 USES SOME OPIATE, INVESTIGATORS FOR MRS. W. K. VANDERBILT, SR., DISCOVER.

The greatest drug-using people in the world are the American people, and not the Chinese. That is the discovery of experts working under the direction of Mrs. W. K. Vanderbilt, Sr., who, since January, has been working against the use of drugs in the United States.

To-day 4.1 per cent of the Chinese are drug-users in some form. In America, 4.45 per cent of the population use drugs.

Mrs. Vanderbilt began her fight on the nation-wide use of drugs in the New York legislature, where she fought for a bill prohibiting the sale of cocaine, heroin, and morphine. She has given large sums of money to organizations opposing the drug habit in her efforts to obtain legislation against its sale.

The entire civilized world has been shouting about the horrors of the opium traffic of China. The Chinese were the originators of opium, it is believed. In China it was found 200 years ago that 6 per cent of the people were drug victims. By consistent fighting against the use of drugs; by laws limiting its manufacture and sale, the use of drugs there has dropped to 4.1 per cent of the population in 200 years.

In America, however, the use of the drug is on the increase.

Laws preventing the transportation of cocaine from one state to another are sought by Mrs. Vanderbilt; and in working for federal laws her experts have compiled data to show the enormity of the drug habit.

Drugs are used by all classes. The criminal class is addicted to its use. Cocaine is injected into the arm. Opium is smoked and taken in other ways. Sometimes the drugs are snuffed. They are taken to drive away the feeling of drowsiness sometimes. Country doctors acquire the drug habit because of their long hours of work. They take drugs to keep themselves awake, and take other drugs so they can go to sleep quickly.

Society women are known to take drugs to drive away weariness in pursuing their social conquests.

In America, drug-users quickly take to cocaine and heroin. The drug causes the user to turn criminal and to die. Five years is the average life of the cocaine fiend.

No other vice renders its victim so dangerous. Opium, morphine, and hasheesh send their victims searching for solitude; but a sniff of cocaine, after lifting its victim into a half hour's rosy overestimation, drops him into the streets and alleys in a state of dangerous melancholia. So brief is the drug's effect that it takes from $4 to $5 a day to satisfy a cocaine addict.

"Cocaine addiction is the easiest habit to acquire and the hardest to cure," says Dr. Podstata, a Chicago drug expert. "Nothing so quickly deteriorates its victim or provides so short a cut to the insane-asylum," says Dr. Towns. Because it takes such a quick, deadly grip on its victim, there are some physicians who refuse to administer any cocaine whatever, even for legitimate medical practice.

May the Lord be praised for one more woman of wealth who uses her wealth and *influence* to protect and reclaim, if *possible*, the "dope fiend." With the world-wide stir now going on in regard to the matter, I think these dangerous agents will very soon be under strict surveillance. One reason for the statement above is that, while we are having a mighty reform over in China, America has to a considerable extent been getting worse and worse. May God help us.

But what argument in favor of the American saloon, so far as "personal liberty" is concerned, will not apply to the "personal liberty" of the unfortunate wretches described above?

URINARY TROUBLES, GALLSTONES, ETC.

When I ventured to give an opinion in regard to this matter on page 832 of our Oct. 15th issue I knew I was getting off from my beat; and you may recall that I said I should be glad to have some regular physician straighten us out. A good doctor from away off in northern Michigan has very kindly answered this invitation, and gives us the following:

Mr. A. I. Root:—In your Health Notes in GLEANINGS for Oct. 15 you discuss urinary troubles and gallstones; and the conclusion to be drawn from your article is that the sediment of retained urine causes gallstones. Kindly allow me to correct you as well as your correspondent. Gallstones form in the gall-bladder—a small sac that hangs just under the liver, and which is really a reservoir for surplus bile which is formed in the liver. This gall-bladder has a duct which empties this bile or "gall" into the duodenum, and it is down this duct that gallstones pass and cause all their trouble. This duodenum is the first division of the small intestine, and so you see the gallstones can have no relation whatever to the kidneys, urethra, or bladder. Now I will tell you and your correspondent just what the trouble is, and why it is best to empty the bladder at night if the inclination comes.

Urine, when fresh, is acid in reaction, and in this acid condition it will not decay; but on standing it will soon become alkaline, and then will decompose. In older people it often becomes alkaline before leaving the bladder, due to the inability to expel *all* of the urine.* This retained urine is called "residue urine," and this will soon decompose, causing an irritation of the bladder, and the bladder must be emptied to obtain relief. Now, don't you suppose that your experience of eating acid fruits has had a tendency to keep the urine acid longer, and thus allow it to be retained? A good many cases of so-called "gravel" in the bladder are simply cases of retained residue, alkaline and decomposed.

Hart, Mich., Oct. 19. L. P. MUNGER, M. D.

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* If the readers of GLEANINGS will excuse me (especially the younger ones) I wish to repeat something that our good friend Terry said some time ago. It is rather plain talk for a home journal, I admit; but in view of the importance, especially to elderly people, I think best to give it. The part I recall is something like this. In speaking of the troubles we have been discussing, our good friend remarked that those afflicted in this way should take plenty of time to get rid of "the very last drop" of urine remaining in the bladder. This would tend to prevent what the good doctor in the above calls "residue urine."

Gleanings in Bee Culture

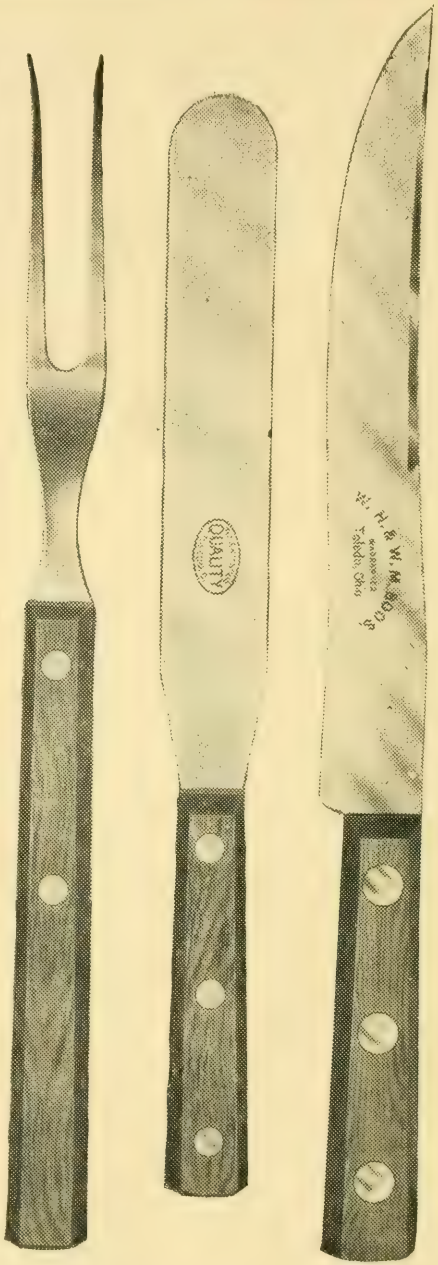


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EDITORIALS

Edition of Iowa Report Exhausted

Mr. Pellett has just advised us that the third annual report of the Iowa bee-inspector has met with such a large demand that the supply is now practically exhausted, although it has been out only about six weeks. A few copies only are left for use in libraries. The demand continues large for all of the publications. Some of the bulletins are already nearly gone, so that revised editions will be necessary.

One More Ghost Laid

Antonio R. Malaquina, of Salto, Uruguay, reports that he has won his suit with proprietors of vineyards at Salto, who were seeking damages on the ground that his bees puncture and destroy the grapes. A year ago several vineyard owners located near his apiary notified him to move his bees, on the charge that they were a nuisance. When he failed to do so they sued him, but he reports that he was able to win the suit entirely without counsel.

Señor Malaquina wrote to Gleanings for a statement of evidence and precedents which he might use in his case. Through some error in translation the editor of Gleanings was made to say that the bees do ten times as much harm as good. This naturally surprised the beekeeper, but he was able to win his suit notwithstanding.

More about the Swamp Bees

George H. Rea just returned from the Dismal Swamp apiaries and reports that the bees are gathering a little honey and pollen, and brood-rearing is progressing in a very satisfactory manner. While a blizzard was raging in the North the sun was shining there every day (first week in March), and the bees worked right along. The temperature during the daytime was around 60 to 70 degrees. While there was frost one or two nights, it was not cold enough to give brood-rearing a setback. The residents of that section do not expect many more frosts. The fact that thousands of bushels of early potatoes and acres and acres of garden are in process of planting is evidence of their faith in the advent of continued warm weather.

Oklahoma Foul-brood Bill Passes both House and Senate

N. Fred Gardiner, of Geary, Okla., has just informed us that the new foul-brood bill has passed both branches of the legislature by the following vote: House, 70 to 10; Senate, 29 to 5. The bill is now in the hands of the Governor, and his signature is expected.

Oklahoma has long needed a good foul-brood law. Two years ago a similar bill was introduced into the legislature but failed to pass. It is to be hoped that the beekeepers who have worked so hard to secure such a law may now be rewarded.

How the Bees are Wintering

It is still too early to say definitely how bees in northern localities have wintered. Reports so far are conflicting, although it is probable that there is considerable loss in localities where the bees last fall gathered considerable aster honey, especially where there was a long period of three months or more when the bees could not fly. There are many reports of excessive spotting of the hives.

On account of the fact that in most localities snow covered the ground during the coldest part of the winter, clover looks very promising.

Our Cover Picture

The cover design gives a view of the Jupiter dock and the Government buildings in the background where the wireless messages are received, as referred to by E. R. R. in his article in this issue, page 225. Our cruiser is shown in the foreground, moored

to the dock. It was at this point where Harry DuBois met us, and from which our party went up the Loxahatchie River to inspect his beeyards.

Perhaps some of our readers will wish to know what that cruiser cost. Somewhere about $5000. It is constructed to stand heavy seas; is furnished with full equipments in the cabins for sleeping, eating, and cooking. Cruising is the most enjoyable way of seeing the country in Florida that I know of. In this particular case we did not buy the cruiser, but chartered it for a couple of weeks.

The Parable of the Barren Apple-tree

With all that has been said at fruit-growers' conventions and written in fruit-growers' magazines, it is hoped that the horticulturists this year will recognize more fully the indissoluble connection between their interests and those of the beekeepers. Since the winter has not been so severe as to kill off great numbers of colonies, the outlook is favorable for the pollination of fruit-blossoms. From that, it follows a good fruit year is due.

In this connection a specific example reported by Dr. B. N. Gates, at the Iowa State Beekeepers' convention last November, is of exceedingly timely interest: "In one of the western states there are two comparable apple orchards of about equal acreage, of similar location and age, each in a pocket in the foothills of an admirable fruit land, both well drained, and protected from frost. One orchard bore heavily for successive years. On the other there was no crop, although the trees blossomed heavily each spring. In despair of financial ruin, the owner called the assistance of the State Experiment Station. A pomologist and entomologist was sent to examine critically all of the conditions at each of the orchards. He was about to return without solving the problem of failure, when the question arose, 'Were there ever any bees maintained in the orchard which had fruited?' It was asserted, however, that neither orchard had bees. However, the problem was not given up, and the ground was again gone over. As the experiment station man was about to leave without finding any apparent reason for failure he chanced to see a stream of bees coming in one of the orchards from a swale under a pile of underbrush. Further investigation revealed a hollow log sunken in the soil sheltering a large colony of bees. It is needless to say in which orchard the log was. Immediately bees were secured for the failing orchard. The owner then netted $3800 on his crop."

Have we Really been Testing Queens?

In *Science* for February 5, Wilmon Newell, state entomologist for Texas, who has been studying inheritance in the honeybee, has announced a few interesting observations which have been brought out by four years of research. At an isolated station along the Gulf Coast, crosses between pure Carniolans and pure Italian stock are being observed.

Mr. Newell finds that the workers of typical Italian color, produced by an Italian queen, are not evidence that she has been purely mated, although this has long been the assumption of queen-breeders. Italian queens mated with Carniolan drones produce workers and queens often indistinguishable from Italians so far as color is concerned. When Carniolan queens are mated to Italian drones the yellow color is also predominant. He has not experimented with blacks.

Offspring of the first of these crosses show a proclivity of the Carniolans for using wax instead of propolis. Bees from the second show it also, but in less degree.

Daughters of these two crosses each produce drones of both races in equal numbers, but produce no hybrid drones. "The actual application of this is that the only test of an Italian queen mated is found in the color of the drones produced by her daughters."

This statement of Mr. Newell's is somewhat tempered by the consideration that when more data are secured on the wide variation in color of drones from purely mated queens, more light will be thrown on several phases of the problem. At best it is rather discouraging to queen-breeders to learn that the only way to discover whether a queen has been properly mated is to examine her grandsons.

Sugar Consumed in the United States

From the Bureau of Foreign and Domestic Commerce of the Department of Commerce at Washington we learn that in twenty-five years the sugar consumption of the country has almost trebled, and has increased from 50.44 pounds per capita, in 1889, to 86.85 pounds in 1914. In that period of twenty-five years Cuba has increased its contribution to the domestic market from 1,032,000,000 to 4,927,000,000

pounds, and the non-contiguous territories of Hawaii, Philippines, and Porto Rico have increased their shipments of sugar into continental United States from 511,000,000 to 1,873,000,000 pounds. Europe, the Dutch East Indies, and other foreign countries, on the other hand, have decreased their sales to this country during that same period from 1,219,000,000 pounds to 23.4 million pounds in 1914. The domestic product has grown from 349,000,000 to 1,841,000,000 pounds. Our exports of sugar have increased from 20,000,000 in 1889 to 97,000,000 pounds in the year ended June 30, 1914, and in the three months ended with Oct. 31 there was the enormous export of 230,000,000 pounds; in round numbers, more exactly as follows: August, 38,956,305; September, 52,290,773; October, 138,372,686, or a total of 229,619,764 pounds.

In the fiscal year of 1913 only 44,000,000 pounds was exported. In 1910, 125,000,000 pounds.

The following table shows the leading factors in the sugar consumption of the United States and its relation to the world product in 1894 and 1914.

FACTORS IN SUGAR SUPPLY AND CONSUMPTION.

	Millions of Pounds	
Domestic product	1894	1914
Cane sugar	610.8	601.1
Beet sugar	44.7	1,240.0
Total	655.5	1,841.1
Cane sugar from:		
Porto Rico	75.5	641.3
Hawaii	326.6	1,114.7
Philippines	124.1	116.7
Total U. S. islands	526.2	1,872.7
Cuba	2,127.5	4,926.6
Other foreign countries	1,181.2	21.0
Beet sugar from foreign countries:		
	510.4	2.4
Total from foreign countries	3,819.1	4,950.0
Sugar exports (including shipments to U. S. islands)	61.3	96.8
Domestic sugar consumption	4,936.5	8,567.0
World's sugar product	16,532.3	35,860.0
Percentage of domestic-sugar consumption supplied by:		
Continental United States	13.3	20.6
U. S. islands	10.7	21.9
Cuba	43.1	57.5
Other foreign countries	32.9	0.2

Another Admonition against Arsenate

Is it too soon to begin this year's series of warnings to ignorant and thoughtless fruitgrowers against spraying during bloom? Doubtless in 1915, just as in every other year, the reckless will add to the untold damage which has been caused by spraying with lead arsenate while the blossoms are yet on the trees, although it is to be hoped that, with all which has been said and written on this subject, some diminution in this inconsiderate carelessness will be noticed.

"Never spray any fruit-tree while in bloom" is the caution of the Connecticut Experimental Station Bulletin No. 184. "It kills your best friends, the honeybees, which pollinate the flowers and help to increase the yield of fruit. The spray will also injure the delicate floral organs, so that fruit will not set." In giving directions for the control of the canker worms, bud-moths, tent-caterpillars, and brown-tail moths, which feed upon the unfolding leaves, the bulletin says to spray *before the blossom-cup opens,* though not until the surface of the leaves has expanded sufficiently to hold the poison.

Fruitgrowers who do not understand the relation between bees and fruitgrowing (and, unfortunately, there are still such men) will be persuaded to stop this practice probably only when they realize that filling the blossom-cup with poison is not only not necessary but positively an injury to the delicate organs of the flower, and a handicap to the future growth of the fruit if it manages to survive. Best results will be secured by pounding this truth home quite as forcibly as the fact that bees are necessary for perfect pollination.

The Pennsylvania Meeting

THE Pennsylvania beekeepers met in their eleventh annual convention in the Senate Caucus Room of the State Capitol at Harrisburg, on Tuesday evening, February 23, holding also two sessions on Wednesday, the 24th. This proved one of the most enthusiastic and probably most important meeting of the association. While the attendance was not as large as at some former meetings, yet the keen interest shown in bringing Pennsylvania to the front was remarkable.

Reports by members and inspectors showed that last season was not up to the average, and that foul brood was extremely bad.

It was brought out that the Pennsylvania association has the second largest membership in the United States, and is second only to New York in honey production. It is also the second largest apple-producing state in the Union. The crop for 1914 was 23,100,000 bushels. Because of their importance to the fruitgrower in the pollination of fruit bloom it is of prime importance to save the bees from the ravages of foul brood.

With two or three exceptions the program was carried out as advertised. The various papers and talks aroused lively discussion and developed some important steps.

One member introduced a resolution boosting Prof. H. A. Surface for State Secretary of Agriculture, which was unanimously adopted, signed by every member present, and later submitted to the Governor by a committee. The Governor received the committee kindly, and showed much interest in the needs of the industry. After careful consideration he did the unusual and unexpected for one in his position by suggesting to the committee that an independent bill be introduced asking for an appropriation of $50,000 for bee inspection. This suggestion was acted upon, and the bill is now in the hands of the Agricultural Committee of the House. If passed it will supersede the item for that purpose now in the Agricultural Budget. The bill has the endorsement of Secretary Critchfield and the hearty support of several members of the House and Senate who were interviewed.

If the Pennsylvania beekeepers and fruit-growers will write their representatives at once, asking them to support the bill, it will stand good chances of passing. With such an appropriation the state can be systematically covered by inspectors, and all bee-diseases brought under control. The beekeepers themselves, moreover, can be educated to better methods. It means millions of dollars to the citizens of Pennsylvania.

We hope to have a picture of the convention in the next issue.

Bees and Orange Culture

A NUMBER of monographs have been published of late upon the relation of bees to horticulture. These articles and pamphlets upon the general subject of the service of bees in pollinizing fruit-blossoms have been increasing the interest of fruit-men in the honeybees and the realization of both horticulturists and apiarists that nature has indissolubly linked together their interests. It has remained for E. G. Baldwin, A. M., of DeLand, Fla., to discuss the bearing of this new science upon citrus fruits in an article entitled "Honeybees in Orange-groves," written for the DeLand *News*. Professor Baldwin, a member of the faculty of the John B. Stetson University, is a practical beekeeper as well as a close student of botany and entomology.

Everybody knows, who has had even the most elementary instruction in botany, that fertilization of a blossom takes place when pollen from the stamen reaches the embryonic seed through the pistil. In some flowers the process by which this takes place is quite as simple as the foregoing statement of the principle; but in far the greater number fertilization is a complex process, requiring the services of one of two outside agents—either the wind or insects.

In those plants such as some varieties of the strawberry, in which stamens and pistils are borne on different plants, the pollen must be carried a considerable distance in order that fertilization and development of the fruit may be assured. In Indian corn the pollen from the tassel must fall upon each strand of silk for every grain to be developed. Maize is best produced in countries where the sweep of the wind is almost uninterrupted.

In the orange-blossom the pollen must be carried from the stamen up to the pistil. To rely upon the wind alone for this service would be about as uncertain as the breezes themselves, so that in places where calms or damp weather are frequent the agency of insects is extremely important in the fertilization of these blossoms.

Here is where the nectar secreted by orange-blossoms is valuable. This thin watery fluid to be found in almost all plants, every beekeeper knows is the base from which the bees make their honey, but beyond this it has no other intrinsic use. Nectar is simply a bait to lure the bees, get them to brush against the stamens and the pistils, and thus unconsciously perform the service which the wind only partially accomplishes, but which is so essential to the production of fruit.

Damp weather hinders the work of all the insects but the honey and bumble bees. In Florida bumbles are scarce. Upon the honeybees, then, depends the success of Florida orange culture.

Of the growing popularity of bees among orange-growers, let Professor Baldwin speak directly: "In some parts of Florida, the citrus-growers are recognizing their need of something more dependable than mere chance to fertilize their groves. Formerly the beemen were too few, or had too few bees in proportion to the number of groves, and there was an antipathy to bees on the part of many, because they thought the bees damaged the trees, blossoms, or fruit, by their coming and going to and fro. As a result, heretofore, beemen have had to pay a rental for the privilege of putting their bees in groves, locating an apiary inside an orange-grove, for instance. But enlightenment is coming. Now the fruit-men actually court the presence of the bees. Notably around Bradentown, the citrus-men actually offer the beemen free rent for beeyard sites, and in many instances even buy bees of their own to place among the trees. It is worth

noting also that the Manatee Fruit Co., of Palmetto, has established three beeyards in or near their groves, and still wish more. They declare that, the nearer the bees are to their groves, the more fruit they have, and the better the quality. . . . For not only does cross-fertilization increase the amount of fruit, but it also betters the quality, encouraging a heartier growth and development wherever the pollen of one tree is mixed with the blossoms on another tree—just as, for example, a mixture of races produces the hardiest types of mankind."

Not less than five colonies to an acre are necessary for best results, says the writer, but more are better.

Professor Baldwin's discussion is elementary, but written not so much to convince the layman as to relieve the lamentable lack of information among the growers of citrus fruits.

The National Convention at Denver; All is Well that Ends Well

SINCE our last report of the proceedings of the National convention there developed toward the last a "little flurry" that promised at one time to develop into something serious; but no sooner had it started than a movement toward peace was under way. The differences and misunderstandings were speedily adjusted. All is well that ends well, and so in this case. We believe the National Beekeepers' Association has a bright future before it. The "bone of contention" for the last two or three years has been over the official organ, the *Beekeepers' Review,* the manner of receiving and disbursing the funds, and the "debt" that has been staring some of the members in the face. No one has questioned the absolute integrity of any of the officials, who have worked faithfully and hard for the best interests of the organization for little or no compensation. A resolution was unanimously adopted, tendering the thanks of the delegates for the faithful and conscientious service of Mr. E. D. Townsend in the conduct of the *Review;* and those of us who have ever had any thing to do with the running of a bee-journal know what that means.

The real question at issue was over the wisdom or policy of handicapping the National by loading on to it the burden and financial responsibility of an official organ and the additional burden of business and finance.

As stated in our last issue, the whole matter was most amicably adjusted by making the function of the National Beekeepers' Association purely educational and social, with no legal connection with any bee-paper or any matters of business. An auxiliary organization duly incorporated with sufficient capital stock to do business is expected to take over the *Beekeepers' Review,* assume its indebtedness, continue its publication, and transact any matters of business its stockholders may elect. It is expected, also, that the two organizations will be very closely allied, although legally entirely separate. The *Review,* to all intents and purposes, will be the official organ of the old National; but the latter, as explained, will have no financial responsibility for its management.

This, in brief, is the solution of a problem that has sorely vexed the delegates for the last two years. Whether the auxiliary succeeds or not, the result will in no way involve the success of the old National Beekeepers' Association (formerly the North American Beekeepers' Association) that has been in existence for over forty years, and which has been such a power for good. With the "bone of contention" removed, and with no legal or financial responsibility, there is no reason why it cannot be in the future what it has been in the past.

The success of the auxiliary or business organization will depend on how well beekeepers subscribe for its stock and the kind of business manager they select. The Colorado Honey-producers' Association has succeeded because the beekeepers of Colorado organized a stock company, subscribed for the stock, and selected a business manager, who, in the language of the day, has "made good." If the proposed auxiliary "makes good" it will be largely because of its manager. Many a time a capital has been dissipated by a poor manager, or because the directors failed to support the policies of a good manager.

CONVENTION ECHOES.

Many valuable papers and addresses were given at this convention—perhaps more than were ever given at any previous meeting of the Association. As these will doubtless be given in full in the *Review,* no attempt will be made here to give even a digest of the general papers. As our space is limited we will attempt to cover very briefly those discussions that relate to policies of the National.

INCREASING THE DEMAND FOR HONEY.

The deplorable condition of the extracted-honey market at the present time, as an indirect result of the Great War, received its fair share of attention. Dr. Phillips, of the Department of Agriculture, made the statement, in this connection, that the Government reports showed that as much honey

is now being imported into this country from foreign countries *in a single month* as was formerly imported before the war *in a single year.* When it is considered that South America and the West Indies produce vast quantities of honey, and that the great bulk of it that has hitherto gone to Europe now comes to this country, it will be understood why the price of extracted honey is so low. Of course, the influx of the imported article does not account for *all* of this reduction. Something must be charged up to the general trade conditions as a result of the war.

The members of the convention were by no means unanimous as to the best way to meet this condition. Secretary Williams believed that the National should encourage its members to do local advertising. He mentioned in that connection the value of display advertising-cards which the National could furnish very cheaply to beekeepers; of live-bee demonstrations; of form letters; of articles in the local press calling attention to the use of honey as a food. Such measures would involve but little expense, and yet if all would thus attempt to boost their markets the sale of honey might be enormously increased. In the line of *general* advertising, he suggested that the National raise a fund that could be used for the purpose by getting the beekeepers of the land to submit to a voluntary tax based on so many colonies or so many pounds of honey. If this plan were properly worked, a large sum might be made available for increasing the demand for honey. Some general discussion followed, but no definite plans have been formulated as yet.

NATIONAL PROBLEMS.

On this subject Prof. Francis Jager delivered an address that was listened to with the most careful attention. By the way, he has charge of the apicultural school at the University of Minnesota, Minneapolis, and according to Vice-president Pellett he is making a great success of it. He certainly made a most favorable impression on this convention.

In his address Mr. Jager called attention to the evident errors and inequalities in the United States Census for 1910. For example, Colorado is credited in that report with producing only 4 lbs. per colony, while Minnesota produces 4½ lbs. In the census there are more jackasses than beehives. Many beehives must have been missed. On the whole, our industry seemed to be on the decline when the reverse is true. No account is taken of bees in cities and towns. Why was this? The Government has supported "infant industries" such as the trusts and the Union Pacific. These babies have now grown large. Our industry is an infant industry. It needs more help. The sum of twenty-five million dollars is annually set aside for agriculture by the Government. We get only a small pittance. In the annual report of the Secretary of Agriculture for 1913, comprising 48 pages, a great deal is said about foreign meats, seeds, sub-tropical fruits, corn, wheat, buckwheat, and potatoes. Even dashens are mentioned, but not one word about bees.

This Association ought to have a committee appointed to see that these discrepancies and omissions do not occur again. If the National Association does not get back of the Census Bureau, the same mistakes and omissions will occur again.

Mr. Jager believed further that the National should have a standing lobby at Washington when Congress is in session. He deplored the efforts of the National to commercialize, as it had been trying to do during the last two or three years, when there was great and important work that ought to be done. Heretofore we have been trying to stick our fingers into the water and then trying to find the hole afterward. It is time we should be doing something. We should appear in *person* before the Government, not in the form of petitions.

This address was roundly applauded; and at its close, Dr. Phillips (supplementing what had been said) went on to explain that, of the sum now devoted to the investigation work in apiculture, not one penny of it had been secured by the National Association.

There was another paper, by Dr. Phillips, on the subject—

DEVELOPMENT OF THE HONEY MARKET.

While he discussed the various methods for doing this he dwelt particularly upon the inadvisability of the association undertaking it on a national scale. He touched upon the subject of co-operation, both local and national. As the subject is naturally one that will provoke controversy, the author's exact words should be taken, and not a digest of them. It was one of the most carefully thought-out papers that were read at the convention. For its full text the reader is referred to the report that will be published in the *Review.*

These various suggestions, so far as they related to policies of the National Association, were incorporated in a set of resolutions that were unanimously adopted.

In conclusion we may say that President Gates made an excellent presiding officer. On the whole the convention was a great success.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



THE winter with its blanket of snow has been fine for white clover, but I'm afraid of the present daily thaw (March 1) with the thermometer at 25 or 30 degrees each night.

WHEN I read of the wonderful work Billy Sunday is doing, I feel proud to think that I live in Marengo, one of the very first places he visited with a series of meetings when he started out on his remarkable career. I believe heartily in Billy Sunday.

THE *Prairie Farmer,* Feb. 13, contains seven articles in reply to inquiries about sweet clover, occupying nearly two pages, and it isn't a special sweet-clover number either. One man in Illinois contemplates sowing seven acres in sweet clover, another forty. That "weed" surely seems coming to the front.

BEES never had less attention from me in winter before. First part of winter was so cold the outside door could be kept nearly shut all the time. Of late, with 25 degrees at night outdoors and 35 daytime, I leave open, day and night, the door opening from outside into the furnace-room, and daytime I keep shut the door between furnace-room and bee-room. That takes the bee-room down to 48 through the night, and up to 55 daytime. Not ideal, but not so very bad.

"OILY waste," says Editor Bixby, *Western Honey Bee,* February, p. 5, "is excellent to start the smoker with . . . but it burns out to a fine impalpable soot that blows out of the smoker on to the comb. I spoiled several sections of comb honey while experimenting with it." Don't know how that is here; but my assistant has a notion it makes the bees cross. [We use the oily waste all the time, and cannot see that the bees are any crosser than they should be. May be they are used to it.—ED.]

DOUBLE telescope covers are warmer than single-board covers, according to page 90, but some will object to their weight. To such let me commend covers like mine, with dead-air space—light as single-board covers, and much warmer. [But they are not heavier. They are made of two separate pieces—a super-cover and a telescope cover. This makes it possible to use packing material between in cool or cold weather. A two-piece cover takes a little more time to handle, and may not be as handy as yours. But yours you cannot pack.—ED.]

IN AMERICA it is the general belief, I think, that, taken all in all, sugar is just as good as honey for bee-food. In Europe there is more of a belief that sugar is deficient as a substitute, and some even go so far as to believe that feeding sugar is to blame more or less for failure of the harvest. The subject is of so much importance that I may be excused for again referring to some things said in back numbers of the German bee-journals; for if the Germans are right we are wrong, and we may do well to find it out. Their argument is this: Besides invert sugar, honey contains pollen, ethereal oil, tannin, malate, tartrate, oxalate, and nitrate of potassa, different phosphates, manganese, natron, silica, sulphur, lime, iron. These things are necessary in the makeup of a bee's body; and although sugar may answer as a heating material in winter, when it comes to supplying material for rearing brood and to repair the waste of mature bees in activity, honey, and not sugar, is the thing needed. So it comes to pass that when sugar is used in spring bees are slow to build up, and attain full vigor only when the harvest is well along and bees are present that have been reared on real honey. Are the Germans right or are we?

FRIGHTFUL indeed is the statement, p. 212, that 4.45 per cent of the American population are drug-users. Well, it's not as dark an outlook as it might be. For not ten hours before I read that statement the new federal regulating act went into effect that has struck terror to the hearts of both vendors and users of cocaine, heroin, etc. In the Chicago *Herald* a dispatch dated Springfield, Ill., Feb. 28, says: "Pathetic pleas received by Gov. Dunne from 'dope fiends' who threaten suicide unless they are given aid in procuring drugs after their supply is cut off by the federal regulating act, which goes into effect at midnight, have brought home to the state administration the suffering the new law will bring to thousands in Illinois." Each writer asserts that he has been a habitual user of drugs for years, has tried to quit and cannot, and asks the state to furnish specified drugs in gradually diminishing doses, with the certainty that if this request is not complied with there is nothing left but death. Likely, however, when they find they can't get the dope they'll manage to rub along without it. Even if they should all commit suicide it might be a cheap price to pay for shutting off the further crop of victims.

J. E. Crane

SIFTINGS

Middlebury, Vt.



I never expect to visit Brazil; but looking at that cover picture for January 1 is almost as good, and a great deal easier.

* * *

The editor says, page 2, Jan. 1, "The best time in all the world to move bees from outyards to home cellars is when there is good sleighing." He hit the nail squarely on the head that time.

* * *

According to a bulletin issued by the U. S. Department of Agriculture, cane sugar contains 1.27 per cent of ash, while beet sugar contains 2.56 per cent. This may account for the prejudice against beet sugar as a winter food for bees.

* * *

Dr. Miller says, page 51, Jan. 15, "With almost any kind of bees I think there will be an occasional colony that will have watery sealing." Did he ever see any watery sealing of surplus combs filled by black bees?

* * *

If the GLEANINGS schedule for 1915 were not already so full of special numbers I would suggest one on sweet clover. [We have an immense amount of material on this subject—nearly enough for such a special number.—ED.]

* * *

I am glad to see on page 66, Jan. 15, that C. H. Clute, of Palmetto, Fla., has had a good crop of honey the past season. Mr. Clute is an exceedingly intelligent beekeeper, and has had a very large experience with bees in different sections of the country.

* * *

"Skunks, skunks, skunks," shouts Mr. Chadwick, page 970, and I will echo from this side of the continent, "skunks, skunks, skunks." If they do not do as much harm here as on the Pacific coast it is doubtless because they are more hunted for their furs. They are the same scamps here as there, and I have found Mr. Chadwick's remedy very effectual. But we have to look out for our neighbors' dogs and cats.

* * *

On page 925, Dec. 1, in a footnote the editor says that stimulative feeding can seldom be practiced in the spring to advantage. I fear he has forgotten the fact that very frequently we have two or three weeks between fruit-bloom and clover when very little or no honey or pollen is coming in; and unless there has been a good flow before this, and the hives well supplied with honey, feeding not only pays well, but is sometimes of the utmost importance.

* * *

Mr. Wesley Foster, page 927, December 1, thinks we may estimate the cost of a pound of honey very accurately. We may be able to estimate what it has cost to produce a given number of pounds in any past season; and by getting the average for a good many seasons forecast what it is likely to cost in the future; but our seasons are so variable that I believe it is utterly impossible to tell accurately what the cost of honey is going to be to the producer this year or next year, or the year after.

* * *

Hildreth & Segelken, in the market report on page 5, Dec. 1, say, "We have had a good deal of trouble with New York honey on account of its candying and granulating. Shipments which we received a month ago are now candied solid, and are being returned by us to our customers. It is the first year we have been in the business when we have had so much comb honey candied." This trouble is also prevalent in western Vermont. I have wondered if it were not owing to the gathering of honey from unusual sources. While clover gave very little honey in 1914, dandelion and vetch appeared to be our chief source of surplus honey.

* * *

Dr. C. C. Miller, page 51, Jan. 15, calls attention to a statement in the *British Bee Journal* that extracting-combs put away wet will not be attacked by bee-moths, and gives as an illustration a pile of wet combs with dry ones in the center which were all eaten up while the wet combs were unharmed. To this the editor of GLEANINGS wisely remarks, "This is interesting if true."

Now, this statement, like many others, is partly true and partly false. If wet extracting-combs are white and clean, free from pollen or dead bees, the larvæ of the wax-moth will not develop on them. If there is pollen in them, these worms will develop in spite of the statement in the *British Bee Journal;* but if there are mixed with the pile of wet combs some dry combs the worms are likely to leave the wet combs when quite small and take to the dry ones, and eat them up and leave the wet combs unharmed. [See what Louis Scholl says in his department.—ED.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Unite your weak colonies, secure your honey crop, then divide just at the close of the season, thus getting service out of two weak colonies that neither alone could have given, and still maintain the original number of colonies.

* * *

A bee heavily laden with pollen became chilled before reaching its hive. It was forced to alight, but failed to take wing before it was accidentally washed from its position by a flush of water. It became soaked, and was washed to the ground. Mrs. Chadwick carefully picked it up and placed it on top of a warm hive-lid in the sun. After a time it regained its usual activity, but for some reason removed the pollen from its legs before trying to continue its journey.

* * *

As much old honey as possible should be taken from the extracting-combs before the flow begins if a light grade of honey is expected. Most of our southern California bees have more honey than they will be able to use before the new crop comes in. The larger part of this left-over honey is dark and inferior in grade, and, if blended with the new crop, it will cause it to be off in color with a resulting lower price. It is not safe to extract close, however, for a week or ten days of bad weather when a colony has much brood and many bees will put them on the starving list. A number of combs set aside and not extracted are worth much at such times. In fact, if the season is doubtful it is much the better plan to set all surplus honey away in the combs until the season is far enough advanced to enable one to know whether it is best to extract or return it to the hives. Remember sealed honey is superior to sugar as bee food. Do not remove it so closely that it may discourage the free use for breeding. Do not try to remove old honey after the combs are partially filled with raw nectar. The result will be that you will have a lot of sour honey on hand that is neither fit for feed nor for sale. It is a good plan to keep a few cases on hand in case of need for feed.

* * *

Mr. H. hired a small boy to assist him in his work with his bees. The boy was at the question-asking age, and kept a continual line of questions coming all of the time. One hot summer day Mr. H. and the boy were slowly traveling up a mountain canyon toward Mr. H.'s apiary. Even the old horse seemed to have been affected by the drowsiness of the occasion. Mr. H. was in a deep brown study, while the boy was asking questions without number. Mr. H. answered in a half-conscious manner to fill only the place of courtesy. The boy said, "Mr. H., how many bees are there in a hive?"

Mr. H. lazily said, "Oh! about 40,000."

"How much honey will a bee gather in a year?" said the boy.

"Oh! about half a pound."

There was a sudden change in the boy's voice, and Mr. H. came out of his stupor in time to hear the boy say, "Twenty thousand pounds! Mr. H, you are the biggest liar I ever heard of."

Mr. H. could but catch the mirth of the occasion, and had to agree that he might have estimated too high.

* * *

What has become of our foul-brood bill? I have heard nothing from it since our state convention. However, I must admit I am not very enthusiastic over it, for the reason that its passage seemed to me to have degenerated long ago into a political matter, especially after it was decided to force it on to the Governor with the same objectionable features it contained when he refused to sign it before. It lacks entirely one provision of great importance. It has no provision that will do away with selfish county ordinances that we have to contend with, and of which there is a chance for as many different kinds as there are counties. There should be a freedom of commercial shipments from place to place. One inspector's work should be equal to that of any other. When a shipment of bees goes to a county line with a health certificate from an inspector they should be admitted on that certificate. The traffic in bees should not be stifled by local ordinances that really have no object except as a pretext to keep other bees out. As an illustration I will cite the fact that my apiary is in Riverside Co., yet my home and a part of my bees are in San Bernardino Co. I often wish to take bees and fixtures from place to place, and such an ordinance would be an intolerable nuisance to me, though I never move bees from either place to the other without inspection.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



"Spring cleaning time" will soon be here again. It is the time when our apiaries should receive a general overhauling and cleanup. It is just as necessary and essential to have these apiary cleanup days as to have them in our homes. And don't forget the honey-house and the workshop.

* * *

"What a difference between the North and the South!" was an exclamation that slipped from my lips when reading one of the recent numbers of GLEANINGS. Ice and snow, bees in the cellars or stored away in winter cases of various kinds, many of the apiaries covered with snow several feet deep. How different it was here! Our men have been visiting our yards and preparing the colonies for the opening of spring. They were still taking off supers of fine comb honey. On some of the hives there were as many as four and five of these filled supers of white honey. The weather was fine, and quite warm on sunny days when it did not rain. We had much rainy weather, or the weather might have been still nicer. Once in a while we had cold days, but all in all it was very different from that up north.

Snow? Yes, we had some snow on the 18th of January. Every thing was beautifully white early in the morning, as there was about an inch of it.

* * *

ESTABLISHING NEW APIARIES.

Our men are now busy equalizing the number of colonies in our apiaries by moving away to new locations all colonies in excess of forty. We usually do this every spring. The forty-colony apiaries are increased in size before the honey-flow by about ten colonies, and often by about that many more in the fall. Thus the main honey-flows are taken care of by fifty-colony apiaries, more or less, which we have found to give us better results than larger yards. During the following spring these are cut down again to forty colonies, and the surplus moved away to form as many more forty-colony yards as we have bees for them.

* * *

WORKING UP A RETAIL MARKET.

Ira Davis, of Taylor, Texas, has a unique method of establishing a market for his honey. He produces chiefly extracted honey, and during the honey season devotes all his efforts toward producing a large crop. He utilizes the more or less idle time of the winter months in disposing of this honey. He proceeds to a town or city of fairly large population, to which he has shipped ahead of him a quantity of honey in 60-lb. cans, and starts at once to establish a honey-bottling business to furnish the retail trade with honey in glass. As soon as he has this well started he turns the business over to a responsible person, either by sale or other arrangement, and with the condition that he furnish the honey for this business. Under his present arrangement and prices this is fairly profitable to both parties to the agreement.

* * *

CYPRIANS TO PREVENT MEDDLING.

An enquiry for Cyprian queens has just reached me. They are wanted to stock an outapiary with the "most vicious bees obtainable so as to keep meddlers away who have disturbed the apiary occasionally, and at the same time give bigger honey yields than Italians or blacks." While I have tried almost all the varieties of bees, the Cyprians among them, I am still of the opinion that the three-banded Italian is superior for all-round purposes. And while the Cyprians are more vicious I doubt the advisability of introducing this race into an apiary for the purpose stated. The chances are that the meddling would go on just the same. The Cyprian bees would not give any larger yields, and the disadvantages resulting from the handling of bees of such reputed ill temper would be found exceedingly unpleasant. Wiser to prevent the meddling by some other means.

* * *

THE DENVER CONVENTION AND THE PROGRAM.

It is too bad that one cannot be at more than one place at a time. I should like to have attended the Denver convention. Well do I remember the last Denver convention I attended a number of years ago, and the enjoyable and profitable time spent at this convention and my thirty days' sojourn through the greater part of Colorado on a trip of investigation into apicultural conditions for the Department of Entomology of the Texas A. and M. College.

One thing in connection with the program of the present convention that has been of considerable regret to me was the entire absence of beekeepers from the southern states. One from Cuba was on the program. Does this mean that we are not a part of the National Beekeepers'

Association, or not worthy to receive at least some recognition? I believe that Texas, at least, has quite a few members in the National, and I also feel that we have some beekeepers down here who are well enough posted on apicultural matters to deserve at least a place on the program of the association.

* * *

WET EXTRACTING-COMBS AND BEE-MOTH.

There seems to be quite a difference in locality if we compare the doings of our bee-moths here in the South with the incident quoted by Dr. Miller on page 51, Jan. 15, from the *British Bee Journal*. My experience in beekeeping here in Texas has given me much information on the bee-moth problem. I have learned that moths not only play havoc with dry combs as soon as these are left without proper protection, but with wonderful rapidity they destroy wet combs that have been extracted only a few days before. Yes, they even go so far here as to pay no attention to the quantity of honey there may be on the combs or in them. Whole stacks of supers of comb honey will be ruined in a very short time if left unprotected at any time during spring, summer, and fall.

I have had some sad experiences. Our assistants were unable to extract promptly a large amount of honey brought into the honey-house. The first sign of these bee-moth depredations is the amount of leaking honey on the floor; and in one instance in which other important duties delayed the extracting work for more than a week, the honey-house floor was covered almost entirely with half an inch of such honey. Over four gallons of it was scraped up from the floor and set aside for feeding purposes. During the extracting of these infested stacks of honey we found scores of combs, the entire lot of which were nearly all filled solid with honey, and well capped over, riddled to such an extent that the remaining mass of honey, what little wax was left, and the webs and moth-larvæ, fell out of the frames when they were handled. From the damage done in instances of this kind I can hardly believe that the bee-moths would ignore wet extracted combs just because they were wet, although they may have a preference for dry combs. My explanation for the case cited by W. Herod in the *British Bee Journal* would be that the dry combs were infested with some bee-moth eggs or young larvæ, perhaps, left undisturbed when stacked up with the wet combs. These then developed to maturity and found sufficient sustenance upon these dry combs without having to go to the wet combs in the adjoining supers. I venture the assertion that depredations upon the adjoining wet combs would have been made if a large number of larvæ had needed more food for their complete development. [See what J. E. Crane says in his department.—ED.]

* * *

PREPARING FOR SWARM PREVENTION.

Already we are fixing up our colonies with the view of cutting down swarming as much as possible. Since our colonies are in excellent condition, strong in bees, the hives full of stores, and as the weather has been quite favorable, the colonies have been rearing brood to quite an extent. If such favorable conditions continue, the hives will soon be very populous. It would be sinful to try to keep them crowded down in a ten-frame hive as used to be the fashion. And, by the way, our two shallow-story brood-chambers have a comb surface equal to twelve Langstroth frames. But even this is not enough in the spring, so we are busy at this time to provide every colony, that is not already so equipped, with a super partly filled with combs of honey, some empty combs, and some frames filled with full sheets of foundation. That will give additional room in which to store any of the scattering honey that the bees begin to store, early in the year, above the daily needs, besides affording a storage place for any honey that is moved from out the brood-chamber proper in making room for the queen to lay the increasing number of eggs. A little later the queen will find additional laying room in the added super. The bees are also given an opportunity for new comb-building in the frames with foundation.

The result will be that the colony will remain contented longer on account of the ample room furnished in the manner described, there will be stronger colonies from the fact of the increased breeding room, and there will be less desire to swarm, due to the fact that there is not the crowded condition that colonies are subjected to under the old method of management. A little later, if it becomes necessary at all, we sometimes interchange the two shallow stories of the sectional brood-chamber proper, placing the lower one on top of the second shallow story, replacing the super back on top, and swarming is delayed for several weeks longer, and usually prevented altogether by the time our early honey-flow begins. When these have begun there is no more swarming. But, after all, the secret is to begin to prevent swarming before the desire to swarm has ever awakened in the colonies. Remember that.

Conversations with Doolittle

At Borodino, New York.



AN APIARY RECORD.

"I desire to keep a record of each colony. Up to the present I have trusted to memory regarding the condition of the different colonies in the apiary; but as their numbers increase I find memory inadequate. As soon as the snow goes off I propose to lay out my beeyard in rows and number each hive, beginning with one on the first row and going to 20 with that row; then commencing with 21 for the second row and ending with 40, and in this way continuing till I have 100 colonies in five rows. If I desire more than the 100 colonies I will start an out-apiary laid out on this same plan. Will you tell me some of the ways practical beekeepers keep a record of their colonies?"

It would seem that there should be a *best* way for this record-keeping; but there is a rare faculty which beekeepers have of thinking that the way in which they commenced must certainly be the best. Some successful apiarists tack a piece of section on the back of the hive just under the cover; and after each inspection of the colony inside this hive, any thing necessary regarding its condition is jotted down by a few shorthand characters or letters which tell all they wish to know about that colony during any season. This bit of section is left on the hive until the next spring, when the colony is looked over at the opening of the season, when, by glancing over the last year's record, the memory is refreshed regarding the colony's previous standing. The old record is pried off and the record for another year is established on a new piece. If the colony proves to be of special value, then the old piece of section is tacked on the under side of the cover, and preserved, so that a continuous record can be maintained for a term of years, or as long as particular interest attaches to the inmates of that hive.

Other successful apiarists are sure there is nothing equal to a book to keep a record in. Years ago I visited an apiary where the proprietor had kept a book regarding it for twelve years, giving a leaf to each colony, and a line of this leaf for each year. The side of the first leaf next the front cover briefly explained the signs used, while the opposite side of the leaf was devoted to colony No. 1 of the apiary. Page 1 and line 1 had all to do with the kind and age of queen, swarming, etc., for the first year, while the first line on page 2 was used to tell how many pounds of honey colony No. 1 gave the first year, how much had been expended on it in feed, or for any other expense, thus giving the net result by taking the expenses of the colony from what the honey sold for. The second year, line No. 2 was used on pages 1 and 2 for this same colony, and in this way this apiarist had on one sheet all about colony No. 1, and what it had given him in net profit for twelve years. And as each page had twenty-five lines, this book was still good for thirteen years more for colony No. 1. Colony No. 2 had pages 3 and 4; colony No. 3, pages 5 and 6, and so on according to the number of colonies in the apiary.

This looked more businesslike than any thing I had run across up to that time; and when he told me of the enjoyment he had in looking that record over during the cold winter evenings, and the plans he made for each colony during the coming season, I was quite sure that this was the best plan. But when I came to carrying the matter out I found that the wind would shut the book so unceremoniously, and, in spite of my best endeavors, open it in a wrong place, that too much time was wasted. Not only this, the honey and propolis the paper absorbed from my hands would so stick the leaves together as to make it very disagreeable, and partly obliterate much of the record unless I carried water and a towel along with me.

I next adopted the record-board plan, as it is styled by those using it, and see no reason for using any thing else. Little squares are laid out for each hive—each in its place, and each row shown in squares. Each square is numbered the same as its hive, and in these squares I make a record at each manipulation, giving by brief signs the condition of each colony and its needs as to queen, stores, brood, preparation for swarming, etc. A board 12 x 20 x ⅜ made smooth on both sides will answer very nicely for an apiary of 100 colonies. Then with this board before me I have the apiary spread out to my gaze at any time I may wish to know about it, and from it I lay out my plans on any rainy day or when I am sitting in the shade for a brief rest from the hot sun on some July or August afternoon. Now, I do not say that this record-board is the best, but that it suits me the best of any thing I have ever tried.

GENERAL CORRESPONDENCE

THE EDITOR'S CRUISER TRIP UP THE LOXAHATCHIE RIVER

BY E. R. ROOT

Our cruising party arrived at Jupiter, Florida, a little town where is located next to the largest wireless station that Uncle Sam owns. We tied to the government dock, got our supper, went to bed, and next morning we waited for Harry DuBois, the bee-man who was to meet us by appointment. We did not have to wait very long, for he soon came up with his gasoline-launch. Our party left the cruiser up at the dock and started with Mr. DuBois in his launch up the Loxahatchie River to see the country, study the flora, and stop at Mr. DuBois' outyard.

After an hour or two we drew up to one of Harry's outyards, as shown, Fig. 1. This shows his manner of protecting his hives from the intense heat of the sun. You will note that the apiary is shaded in much the same way that is done in Arizona, where the heat of the sun is intense, with this difference, that Mr. DuBois does not use a solid cover, but rather open slat work—just enough to break up the solid rays of the sun. At times he finds that this overhead shed is insufficient, and so he uses in addition an extra shade-board, or, rather, a sheet of galvanized roofing, which is separated from the cover proper by a couple of cross-cleats.

We were about to go into his yard when Harry suggested that we had better put on our veils—a wise precaution as subsequent events proved; for the bees met us more than half way. But they are great honey-gatherers, and that was a consideration with their owner. After catching a snapshot of the yard, and looking into a few colonies, we went back to the boat to resume our delightful ride up that beautiful river. There was not a breath of air stirring, and the surface of the water was like glass. Large fish could plainly be seen under us. At every turn new beauties presented themselves. The water was so placid that it mirrored the surrounding scenery down into the river; and if we could by some means have been turned upside down we should scarcely have known which was the real and which was the reflected image. Fig. 2 gives



FIG. 1.—Harry DuBois' apiary on the Loxahatchie River, Florida. The idea of the overhead screen is not to shut off the sun's rays entirely, but to break them up. Too much shade does as much harm as too little in this country.



FIG. 2.—One of the beautiful views on the Loxahatchie River over which the editor and his party cruised.

a mild conception of the beautiful views on the Loxahatchie.

I should like nothing better than to spend a week fishing on this river—especially if I could have an expert fisherman like Harry to tell me what I did not know about the sport, and that would comprise a volume.

After we had gone up the river some twenty miles we came back and stopped at Harry's home. It is built on some shell mounds of a prehistoric race that evidently lived on oysters and fish. By digging into the bank we could find here and there fragments of old pots and kettles.

In going up and down the river that day I noticed acres and acres of scrub palmetto; and as the land grew better in spots this palmetto grew larger. The stunted growth of the palmetto on poor land, said Harry, does not permit of its yielding much honey; but where the land is good the palmetto reaches a height of six or eight feet, and then the yield of honey is fair. As everywhere else in Florida, the flow is in direct proportion to the richness or fertility of the soil. This is especially true on the Loxahatchie River. Pennyroyal comes in to help build up the colonies. Without it there is not much hope of a crop except by direct feeding, and the yields of honey are so light in this locality that Mr. DuBois says he cannot keep more than thirty or forty colonies to the yard. This is a very different condition from what we found on the Apalachicola River, where it is possible to put ten times that number in a single location. From a general survey on the Loxahatchie one is forced to the conclusion that this is not an ideal bee country; but it makes a fair living for one man providing he can have all the territory to himself, and provided, also, that he can devote the off seasons to fishing on the river or out on the ocean. Mr. DuBois is not only an expert beekeeper, but he is a skillful fisherman as well. When he first came down into this country he went into truck-gardening; and while he got fairly good results it did not pay him as well as beekeeping. Ever since he his taken up bees he has made a better living than with gardening or fishing alone.

Speaking about fishing reminds me that at Jupiter and Pompano, a little below, is where the famous Pompano fish are caught. These fish retail at a dollar a pound. There is probably no fish in all the world that will compare with this particular fish for the table. At least I never ate any thing their equal, and I am told this is the verdict of every one who has tasted them.

The Loxahatchie is no bee paradise, whatever we may say of its beauties from a scenic point of view; and for this reason Mr. DuBois will not be interrupted in the quiet possession of his territory.

Before we bid good-by to our friend we must take a picture of him and his wife. Fig. 3 shows them on the porch overlooking the Atlantic Ocean.

The next morning we started off on our



FIG. 3.—Mr. and Mrs. Harry DuBois, of Jupiter, Fla., on the front porch overlooking the Atlantic Ocean.

cruise to Pompano, a location formerly owned by Mr. O. O. Poppleton, referred to an issue or two back, and where The A. I. Root Co. now owns and operates a small beeyard under the direction of Mr. W. A. Selser, who is now in Florida. We arrived at the place toward night. Fig. 4 shows the remnants of Mr. Poppleton's beeyard in the background and a vigorous date palm at the right, and Fig. 5 a general view of the surroundings. Here lives Mr. I. I. Hardy, who runs quite an extensive truck-garden. At the time of our arrival there had been a frost—the only one in several years; but severe enough to freeze down acres and acres of tomatoes. Many of the truck-gardeners along the way that morning were very blue. While the Pompano vines were touched slightly, no great damage was done.

It will be remembered that Pompano is the place mentioned by Mr. Poppleton where bees could breed every month in the year. In fact, it is the location he used for years for building up his colonies. It affords large amounts of pollen and some honey clear on through the year. There is only one objection, and that is the number of dragon-flies that come on in April; but usually Mr. Poppleton can avoid these by moving his bees to other locations, and where there is honey too.

The A. I. Root Co. has purchased from Mr. Poppleton the bee rights and his build-



FIG. 4.—The Pompano location in Florida where The A. I. Root Co. now has a small apiary. The palm on the right is characteristic of this south land.



FIG. 5.—A more distant view of the Pompano apiary, showing the water frontage and the beehouse in the left background.

ings. We are experimenting in this location with the view of seeing what can be done in the way of breeding bees there every month in the year, and then shipping them north. The question of freights will probably be considerable of an item; but we hope we can deliver them by boat to New York or Philadelphia, and then distribute the bees from those points. In case a preliminary test proves to be satisfactory we probably shall keep a man there a good part of the year to rear bees and queens. But nothing will be done during April on account of the dragon-flies. We are waiting to see how destructive they are to bees, and hence we have only fifteen or twenty colonies there. If the increase is satisfactory we shall have more.

WINTER STORES; SUGAR SYRUP PREFERRED FOR COLD WEATHER; SEALED HONEY FOR BUILDING UP IN THE SPRING

BY GEORGE SHIBER

Much has been written during the past year or so about the difference between sugar syrup and natural stores for winter.

My experience in wintering many colonies during a number of years indicates that, for a strictly winter food, and by that I mean the cold-weather food, nothing equals sugar syrup. I am also prepared to believe that ten pounds of sugar will not make much more than that number of pounds of stores after the bees have been fed. I also feel from observation that ten pounds of sealed honey will go further (during the cold weather) than ten pounds of sealed syrup. The reason why syrup is better for the confinement period is because it is easier on the bees. They can stand a longer confinement and come out healthier than on natural stores. I have noticed this many times. To-day, Feb. 19, the bees that had sugar are small, lively, and healthy, while those colonies that had only natural stores have touches of dysentery—not bad, however.

If my bees can have a fly some time the last of January I feel perfectly safe with fall honey; but if they cannot have this chance it is more or less risky. But with sugar syrup I would not worry if they did not fly before March.

I have had colonies winter on sugar that, after their confinement, showed absolutely no spotting of the hives when they had their flight. The spotting is always evident

when the bees have wintered with natural stores. That is my observation. For building up in the spring, whether the bees were wintered out of doors or in the cellar, nothing equals sealed combs of natural stores.

Here is my ideal way of preparing a colony for winter. We will say the hive contains about fifteen or twenty pounds of sealed stores. Some time during the last of October (as late as we can) the colony is given a ten-pound pail of two-to-one syrup. Sometimes it is a little richer than that. This will last the bees pretty well through the cold period, and they use the natural stores to build up on in the spring. This is by far the best plan for successfully getting the bees over the winter period that I know of. This colony will probably consume more than the ten pounds of syrup before cold weather is over, when, of course, they would begin on natural stores, so if they did not fly until March the residue from the smaller amounts consumed would not be great enough to interfere with their health.

Randolph, N. Y.

INDIANA NOTES; GEE OR HAW?

BY S. H. BURTON

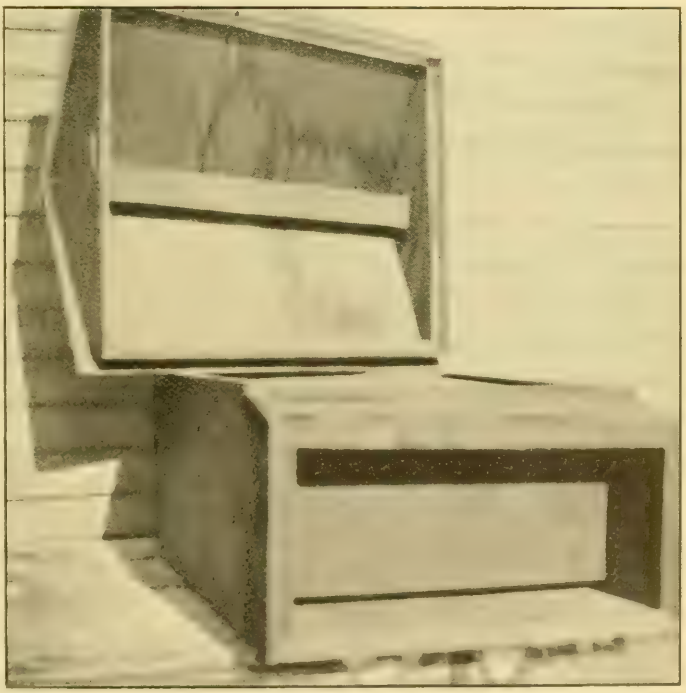
When doctors disagree, it's time for plain fellows to get together. There is an interesting difference of opinion concerning what the beekeeper should do in the way of using sealed covers or absorbent cushions. Why not let nature and the bees settle that themselves? Man thinks himself pretty smart in that he can improve on nature's laws, which, to a certain extent, is true; but in some cases it were better if we be not so self-conceited. Why do the bees glue up every thing air-tight at the approach of cold weather? I have cut a good many bee-trees, and have yet to find one with any kind of ventilation at the top. I have bought and transferred a good many colonies in old box hives and gums, and the colonies were invariably strong. The inside of these old homes would be varnished over with bee-glue an eighth of an inch thick.

It is perplexing to hear so many authorities disagree; but it is the man who goes to the bees himself for an answer who finds success within his grasp.

Whether we gain by heeding Gee or Haw depends on how near we are to what nature intended, and we at least strike a happy medium.

NEED FOR A LARGER PACKAGE.

I wish some manufacturer would turn out a glass-front shipping-case of just the right dimensions to hold eight shallow extracting-frames 4½ inches deep. The consumption of honey can be more than doubled by marketing it in larger individual packages. I have always maintained that the section box is too small a package for the average family. Place a section of honey on the table where there are children, and what is



The framework is like that of a miniature house.

left for the next meal wouldn't start a case of robbing among the bees.

Several advantages are gained in marketing comb honey in the shallow extracting-frame—viz., a greater surface of comb is exposed, giving a better appearance, which attracts the eye of the consumer; it will stand shipping better because it is more firmly attached to the four sides of the frame; it will increase the demand for honey through increased consumption, and can be produced for less than the section honey. Actual sales at four leading grocery stores showed the startling comparison that one shallow extracting-frame was sold for every single section that was purchased, the section honey retailing at 20 cts. per section, and the shallow extracting-frames selling for 75 cts. each, or 15 cts. per pound. A glass-front case was made to hold eight of these frames. All frames but the one next to the glass were wrapped in oiled paper and tied both ways with yellow "baby ribbon," which is about ⅜ inch wide. This makes a neat, attractive, and fast-selling article.

A NEW HIVE-ROOF.

Has any one tried a shingle roof for a hive? The accompanying photographs show one as constructed by a beehive manufacturer here. His claims for this cover are that, since it is constructed like the roof of a house, it affords ample ventilation in summer; is as waterproof and durable as a shingle-roof house, and cannot warp nor get out of shape.

The framework—that is, the rafters and bottom plate—are cut and constructed on the order of a miniature house roof, and the shingles are nailed on the same as on any shingle roof.

I have tried this cover for several seasons, and find that it is all the owner claims for it. However, my chief objections to such a cover are that it is heavy and cumbersome, and cannot be stacked for storage compactly. It also has to be handled very carefully in order not to knock the shingles loose.

For a hive cover for the eight-frame hive I am using a cypress board one inch thick, 16 inches wide, and 22 inches long. Across the ends I nail an inch-square oak strip and clinch the nails on the under side. These inch oak strips prevent warping, and add sufficient weight to the cover to prevent its being easily blown off. Properly painted, these covers last for years, and cost about 25 cts. each.

SUCCESSFUL TRANSFERRING.

Transferring to cure American foul brood after the fall flow has ceased is usually deferred until the following spring; but we have adopted the following plan with good success: To do the work safely, select bright cool mornings in the latter part of October, when there is no danger of other bees flying, and do the work on the "installment plan." Begin by removing the two outside brood-frames; close up the hive and put the two frames out of reach of the bees, being careful that not a drop of honey is left exposed. The following morning, if the weather is favorable, remove two more brood-frames, shaking or brushing the bees off into the hive. Follow this procedure till only two frames are left in the middle of the hive. Late in the evening part these two frames and slip in two brood-frames between with full sheets of foundation.

Quickly remove the two remaining brood-frames and shake or brush the bees off into the hive. Spread a cloth over the frames, A shape; close up the hive, and after dark close up the entrance. Leave the bees thus 48 hours. Have a new hive prepared with full sheets of honey, removing two central frames. Late in the evening move the old hive alongside the new one; lift the bees from the old hive which are adhering to the frames of foundation, and slip in place in the new one. Some bees will also be clustered on the cloth, and this can be spread over the new hive. The remaining bees in the old hive can be dumped at the entrance. The bees quickly shaken from the last two old frames have very little opportunity of taking much honey with them. Being confined 48 hours they consume what stores they have with them.



The cover is built like the roof of a house.

We find that by thus transferring in the fall the bees draw out the new foundation, the queen starts laying, and we are in shipshape for the coming of spring.

Washington, Ind.



One row of hives in the Wisteria Apiary, Riverton, Wyoming.

CONQUERING COLD IN WYOMING

BY E. H. RYAN

I am an amateur beekeeper. I have been in the business about five years, and have had many reverses in losses of colonies, but only from cold winters. It is sometimes 40 below zero here for several nights at a time.

There is only one way to handle bees successfully here, and that is to use double-walled hives packed underneath the bottom-boards with straw. The bottom-board must be ten or twelve inches from the ground.

I also use a gunny sack over the hive, under the cover, allowing it to hang down over the sides and entrance to ward off the snow.

On warm days the sack is turned up from the entrance so that the bees can get out and fly.

I have a house 16 x 20, with a basement under it. I extract the honey in the house, and pipe it through the floor into the strainer over the storage-tank in the basement. Here it is canned up and stored. I use a six-frame automatic extractor and gasoline-engine. I have never made less than 200 lbs. surplus per colony, spring count, and some colonies have made as much as 500 lbs. extracted honey in a season.

There is abundant pasture right at hand, consisting mainly of sweet clover and alfalfa. The honey is principally sweet clover.

Wisteria Apiary, Riverton, Wyo.

SETTING BEES OUT OF THE CELLAR

How to Prevent Drifting and General Demoralization

BY E. S. MILES

The time to get the bees out seems to me more of a problem than the time to put them in. After they are in we care little what kind of weather comes, as it cannot affect the bees in the right kind of cave or cellar. But in the spring it is the other way. After they are out, the weather does affect them considerably. After the time when bad blizzards are not likely to come, or long-continued cold, if the bees can be taken out so as to get a nice warm sunny day for a cleansing flight, they will endure much bad weather and yet mature some brood; and if there are plenty of stores in the hive, as there should be, they will have a nice lot of young vigorous bees by fruit bloom to replace the loss from old age, which is quite heavy in spring.

In getting cellared bees established again on their summer stands there are two things to be guarded against—namely, mixing up and robbing. Where a lot of bees are confined to a small space for several months, as in a cellar, they do not always seem to know "which from t'other" when first set on their summer stands. This sometimes leads to robbing, which, when once started, is hard to stop. Any thing tending to confuse the bees or cause them to lose the location of their own hive, and get into another, will increase the danger of robbing getting started. To avoid mixing up and robbing we recommend the following procedure, which, while it may not always prevent, will reduce these troubles to the minimum if care is used.

For setting the bees out, choose a still sunny day, only moderately warm—from 50 to 60 Fahrenheit will do. Set out as many as possible as early in the day as the temperature will allow; put all colonies on the same stands they occupied the fall before, and contract all entrances immediately, before any bees fly. It is a help also if the apiary is located so as to contain some shrubbery or small trees or buildings, as these will divide the bees and make them notice their location better. A small apiary, less than 50 colonies, will not be as hard to manage on this score as one containing 100 or 150 colonies.

The advice has been frequently given in the journals to disregard the previous location of the hive in setting out in the spring. This is a mistake, especially in a large apiary. To those who doubt that bees remember the location of their hive over winter, we wish to recommend this experiment: When you take out your first colony, instead of setting it on its old stand set it on a new one anywhere in the apiary, having first set an empty hive, like it in looks, on the stand it occupied. Now watch the empty hive a little while and see whether any bees, after circling around, will come back to the old location. If your bees are like mine a good many will be seen hovering around the old location in a short time after the colony starts to fly. If you now set another colony from the cellar in place of the empty hive, quite likely some of these bees will alight and unite with that

colony. If no other hive was put out, however, they would soon find their own. The more hives put out, on the other hand, make it more unlikely that they will find their own.

There are certain colonies that seem to be inclined to welcome all comers; and as soon as some of the lost bees alight at these entrances, and start the "home call" it means a steady gathering of the strays, so that certain hives are packed full while others are depleted.

Another thing that tends toward the same results is to leave too large an entrance during the first flight. There is no need of a large entrance at this time except where the bottoms have been left on over winter, and the bees are expected to clean them of dead bees and cappings. It is more economical and much better to winter the colonies without bottoms, thus having clean ones to set them on each spring. But if they are on, rather than make the bees clean them we would change each one when setting out, getting a clean one to start with, and after changing the first one clean that one for the next hive, and so on, so that all have clean bottoms when through.

Contract the ordinary ⅜-inch entrance to one or two inches in width for fair to good colonies, and ½ to ¾ inch for weak ones. This is more to prevent the bees getting into the air too fast than to prevent robbing.

If bees are set out on a windy day they are pretty sure to "drift"—that is, head up against the wind, and go into the hives on the windward side of the apiary. The only reasonably sure way to prevent this is to avoid setting them out on a windy day, although it may help some to set the leeward side out first, letting as many bees return as time will permit before putting out the windward side. Drifting is much worse in an open yard exposed to wind than in a sheltered place with trees or shrubs in it.

We have tried changing places with hives that had more than their share, putting weak ones in their place. This will equalize some, for many of these bees will go back to the same location at their next flight; but there is some chance of losing queens by this procedure. Another thing to be remembered is to air out the bee-cellar thoroughly if possible, the night before taking the bees out. If this is done the bees will be much quieter, and will not notice the fresh air that comes in when the door is opened to enter the cellar as they would if the air in the cellar were warm or stagnant.

We do not use any smoke in the cellar in taking bees out, but always have a good smoker handy outside, to make them behave until the hives are fixed as wanted.

Dunlap, Iowa.

THE SEASON OF 1914 IN THE CENTER OF ENGLAND

BY W. J. WOOLLEY

Being a touring expert in the southern part of Worcestershire I send you my short report of 1914.

This is a noted fruit and vegetable growing district bordering on the outside with farming. The honey crop was the best for about twelve years. Although the Isle-of-Wight disease did some little damage the district still contains a lot of strong healthy colonies, and the bees paid well.

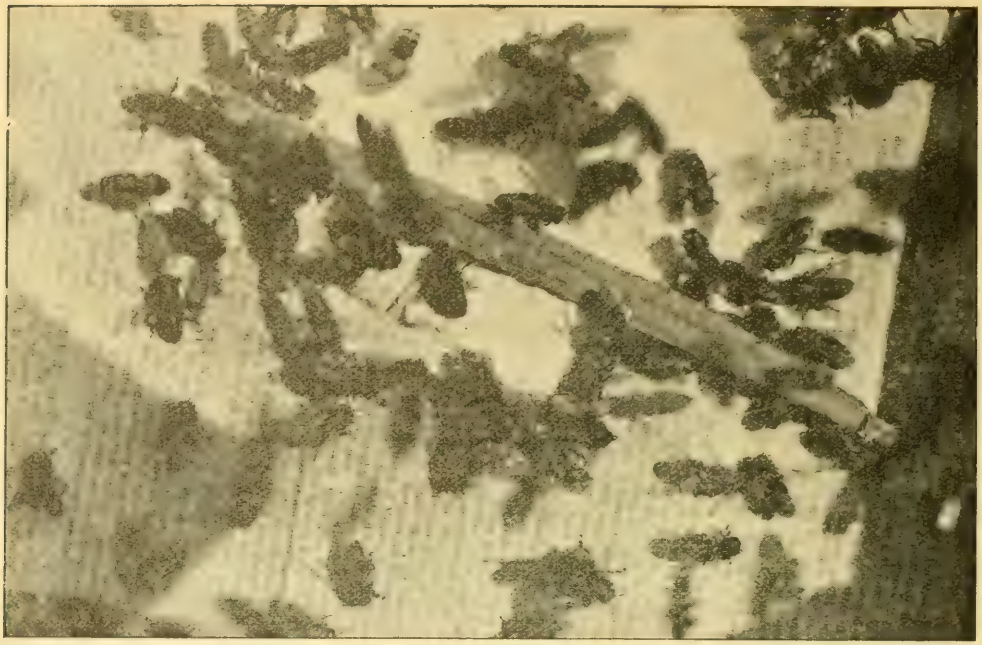
The average in the fruit-growing district was 30 lbs. of honey. Some of the members of my association who live in the vale at the foot of the hills had an average of 75 to 80 lbs. each for which they received the price of 9d per lb., extracted, and 10d per section wholesale.

The bees were busy from April till August, when the drouth affected the yield from the clover. Colonies went into winter well provided with plenty of well-ripened food, and look promising to come out strong in the spring. The bees swarmed very little this year. Out of my apiary of 28 stocks I had only three swarms, and I could not get enough to supply orders for swarms.

At one place where I called on my autumn tour the man had not taken his crop of honey off, and he asked me to do it for him. He had put only one rack of sections on, and had been too busy to attend to them, so he said. Well, when I got to the hive I had hard work to get the roof off. What a sight! The owner had put only one small quilt over the rack of sections, and the bees had found a way, after finishing the rack of sections, into the empty space above, and had built and sealed with honey the whole of the space under the roof of the hive. They had sealed the roof down with honey. The bees had stored over 30 lbs. above the rack of sections.

He wished, when he saw the sight, that he had looked after them a little better, and so had a far greater crop of honey.

Evesham, Worcestershire, Eng., Dec., '14.



Bees working on flour during a dearth of natural pollen in the spring.
From Byron S. Hastings, Brooksville, Ind.

STRAIGHT AS A BEE-LINE; ECCENTRICITIES OF BEE-FLIGHTS

BY GEORGE H. REA

The cover picture of GLEANINGS for December 15th reminds me of a visit to this yard late last summer. It was during buckwheat bloom, about the middle of the afternoon of a hot day. We had driven out in the auto truck to feed (this is the yard where we fed the Porto Rican honey, see page 4, Jan. 1).

Very little nectar was to be had in the field excepting from a small field of buckwheat on the north side of the yard, but it was the wrong time of day for that; so that you can imagine my astonishment when entering the yard to observe the bees lining off toward this buckwheat-field by the thousands.

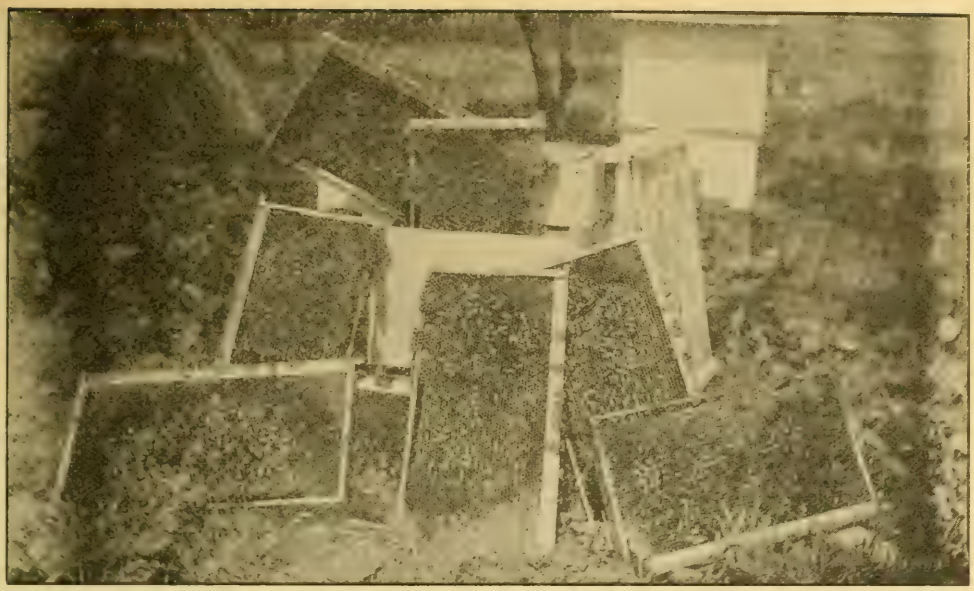
Now look at that picture (cover, Jan. 1). The north is at your left. Observe that there is a fifty-foot embankment to the south, or right-hand side, covered with trees. The west side, or the front of the picture, is open ground, as is also the embankment on this side of the yard.

I told the boys that while they fed the bees I would determine, if possible, where the supposed honey-flow was coming from. I intended following the bees; but before so doing several of the incoming workers were relieved of their burden, and in every case it was found to be water, pure and simple. I was puzzled to know why they should line off toward cultivated fields where no water was in sight, when a copious stream flowed in the ravine at the base of that bank not more than one hundred feet away.

To my astonishment this is what I found: The flight was in a stream out over the fence on the north side and into the field to a point a little beyond a small tree, which shows in the margin of the picture. There they turned sharply to the east, continued over the corn-field in the background, and out over a plowed field nearly a quarter of a mile beyond, keeping parallel with the wooded ravine. Here the ravine spreads out, the high banks diminish, and the stream is skirted with low-growing trees. Here the flight of the bees rose almost beyond vision, and turned again abruptly to the right, or south, and continued to turn out over the shrubbery, and flew directly back down the stream on the opposite side.

They were found watering in a swampy place at a point almost directly opposite the apiary, most of them not five hundred feet from where they started. Why did these bees fly fully half a mile to get water so close to their hives?

Three reasons, I think; namely, protec-



The result of neglect. The bees died because disease was allowed to get a start.

tion which the trees afforded from the prevailing southwestern winds; to avoid either flying over those high trees, which was necessary if they went direct; or lifting straight up that high bank if they flew west a little to the opening. But then, talk about "as straight as a bee-line." Say! I have lined my bees at home among the Pennsylvania hills for a distance of seven miles, and descried many a crooked path thereby; but this is the most notable case that has come under my personal observation. It is conclusive proof that bees do take advantage of the contour of the country, and natural objects, such as trees, buildings, fences, etc., in order to follow the lines of least resistance to wind and gravity.

Medina, Ohio.

REFLECTIONS OF A BEGINNER

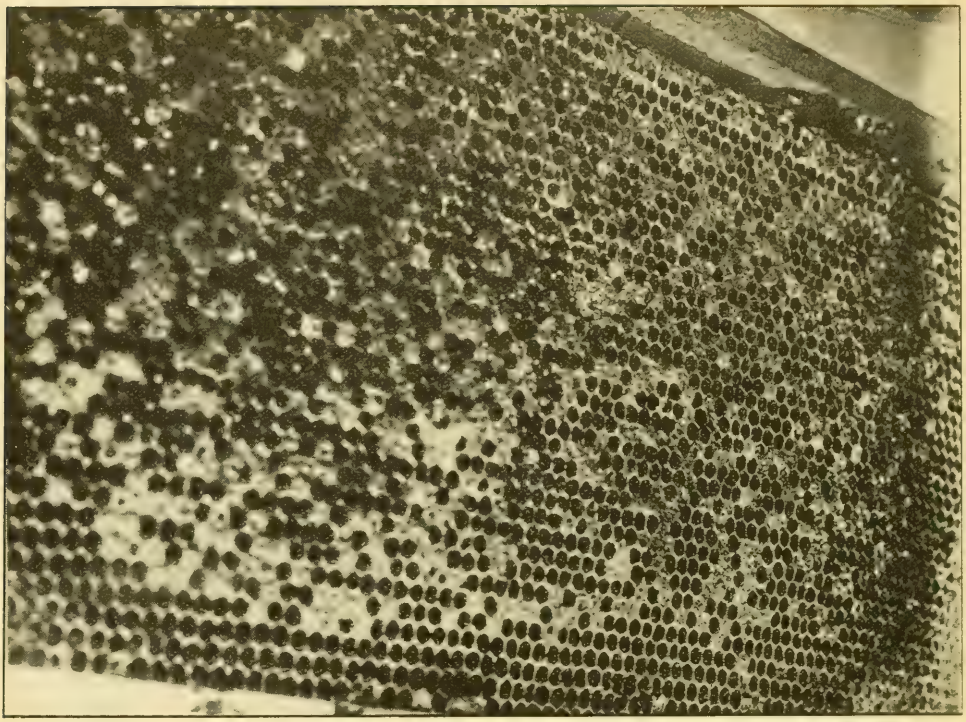
BY C. M. MYERS

A thorough knowledge of beekeeping at the start is not essential to the eventual success of the layman; but judging from my experience a thorough study of the advanced A B C and X Y Z of Bee Culture will save many brain-storms and heartaches for the average beginner.

All one winter I studied the A B C daily, and each day some new phase of the work became more apparent. When spring came, following a hard winter, I was anxious to get started early; but because of the heavy winter losses among the beekeepers all over the country I was unable to find any bees for sale until the first of June. At that time I purchased two strong colonies with half-filled supers. I brought these to my home in town, and placed them in the back lot. This was barren of trees of any kind, and the only shade the bees had came in the late afternoon from a board fence.

My venture seemed crowned with success when two full supers had been removed and new ones substituted; but my enthusiasm was taken down a notch or two a few weeks afterward, when, in searching for queen-cells to head off any inclination at swarming, I found that both my hives were infected with American foul brood in the most malignant form. The McEvoy treatment was given them at once, and they were in fine order by fall. That winter, however, they went out just after a continued warm spell in February. Upon examination I found my error in judgment regarding the amount of stores needed, as all the stores were exhausted.

Hardly before the time when bees are safe from spring dwindling, two more hives were bought at a sale held by an expert beeman. These were placed on the empty stands. This second year proved a failure



A close view of a comb containing foul brood, showing the sunken and irregular cappings, scattered patches of brood, etc.

as far as surplus is concerned; but from these two stands an artificial increase of six was made, and, with the purchase of four more hives, the second year closed with twelve good colonies.

The winter following was a severe one, and a total loss of four occurred, two of which came because of leaky lids. This caused me to fit all my colonies the following summer with metal covers. By careful methods I was able to get good surplus last summer; but not one of the eight old stands produced as much as a prime swarm which was captured the first week in June. When winter came I had a total of fourteen colonies. The additional six were natural swarms, five of which were captured, and one was my own because I overlooked a queen-cell.

Few are the men and women engaged in the hazards of business who do not look forward to the time when they shall have a country home of their own, let it be large or small. There they hope plenty of all of life's necessities may be assured regardless of financial conditions.

That has been my sole ambition. While yet a young man, not yet out of my twenties, I hope to return to the soil whence my ancestry came. While a bank account is a thing much to be desired, thousands of young men and women, married or single, find things seriously different from what they anticipate when they reach the end of the business world. The game requires much and gives back little in return, and absolutely nothing when old age and infirmities come with awful suddenness. Discharge from the service of the employer sometimes brings nothing to face but the infirmary when the small savings of fitful frugal periods are gone.

Therein lies the reason why so many acquire knowledge of bee culture, poultry-keeping, and gardening—that they may succeed when their backs are turned on the fallacies of the cities, and that they may return to health, happiness, and a bank account in the country.

Two years ago I had the pleasant and profitable experience of assisting the state inspector of apiaries in this section—an experience which has proved to be more valuable to me than I had ever expected. There can be no reason why any one who owns bees or keeps them in any way, modern or crude, should not be well informed on the subject of foul brood. Every farm paper of any consequence, and all of the bee-journals, have articles of this kind, and

the government has on hand at all times a supply of bulletins relating to this and all other subjects of importance.

I am sending two pictures of brood-frames in an apiary of five colonies, which died of the disease during the winter previous to our inspection.

Winchester, Ind.

THE WATER TREATMENT FOR GETTING BEES OFF DISEASED COMBS

BY F. R. M'COY

Read before the annual meeting of the Idaho Honey-producers' Association

As soon as foul brood is discovered in any colony of ordinary strength, treat the diseased colony at once by placing it in a tank containing a few inches of water. This tank must be perfectly level, and the water deep enough to keep the bees from escaping from the infected hive.

Take a clean hive, with full sheets of foundation. Place a wire cloth upon the top and put the whole thing upon the top of the diseased hive in such a manner that the bees can readily work up into the clean hive. Finally, put weights on top of the upper hive to keep the lower hive from floating.

Commence pouring water into the tank in a steady stream, small enough so that it will take about twenty minutes for the water to get high enough to force all bees from the diseased lower hive into the clean upper one. Let the water reach the top of the lower hive, and no higher. Great care must be taken not to pour in so much as to raise the level above the joint between the lower and upper hive.

The bees are now off the old combs, and absolutely clean and free from any disease. Have a bottom-board ready on the old location where the diseased colony stood, and set the clean hive of bees on top. Take the diseased colony or the old hive, and destroy it totally by fire.

THE VALUE OF THE ADVERTISING DEMONSTRATION

BY J. L. GRAFF

There was read at the late convention of beekeepers in Chicago a letter in which the writer ventured the suggestion that if each beekeeper would contribute half a pound of honey or its price toward raising a fund to carry on a propaganda demonstrating the varied uses of honey in the average home a great deal could be accomplished in increasing the demand.

I have often wondered why honey itself is not used to tickle the palates of food consumers. I notice at the big shows, like the dairy and live-stock shows, other products are demonstrated in an effective way. Three hundred thousand people attend the Chicago international live-stock show annually. Butter on crackers advertises the butter. Butter is put into thousands of bags of pop-corn for the same purpose. The manufacturers of ketchup make extensive use of the oyster patty to tempt people to try the condiment.

If the results that encourage manufacturers to stick to such a practice are satisfactory for butter and other products, why wouldn't a small spread of honey on a cracker turn people to honey?

Recently I went into a grocery and discovered the proprietor standing on a high ladder. He had a big poster in his hands making ready to tack it up. When he turned it right side out I read the advertisement of Airline honey. It was displayed in a taking way; the bill in itself was attractive, and there was a good catch-line that led the reader to read on.

Honey can be effectively advertised and demonstrated. The thing to do is to do it.

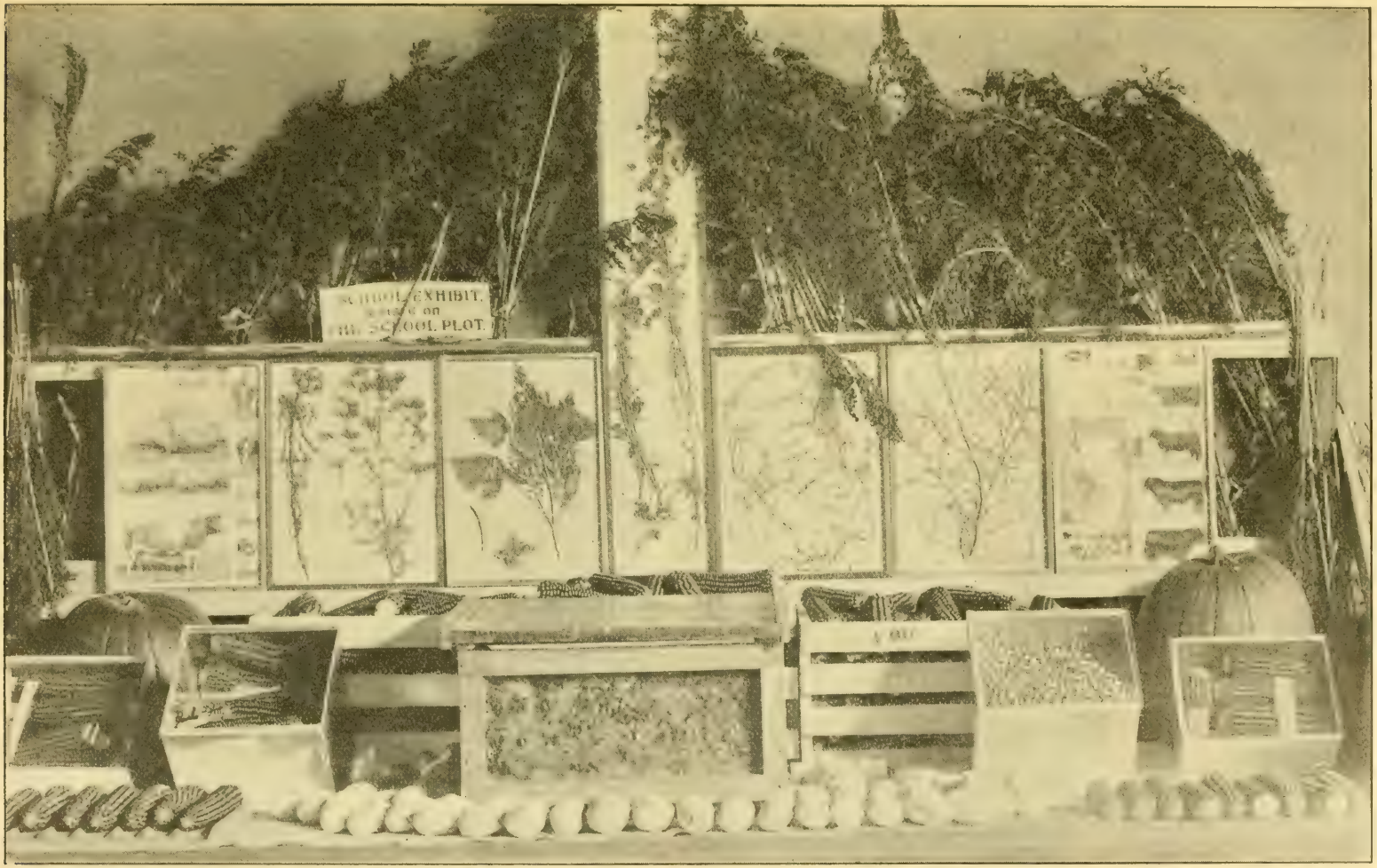
Chicago, Ill.

BEE CULTURE TAUGHT AT SCHOOLS

BY W. C. HICKS

Inclosed is a picture of a school exhibit at a tri-county fair recently held in Cass Lake. This is of interest, as it shows that beekeeping is taught in our schools. This is a new country, just changing from the lumber industry to the agricultural. It gives promise of being good bee territory. Our honey-plants are white and alsike clover, wild raspberry, and basswood, with acres and acres of pollen-bearing shrubs that bloom in early spring. Sweet clover is being introduced.

Cass Lake, Minn.



School exhibit at the tri-county fair, Cass Lake, Minn. This shows what can be produced in the northland timber region. W. C. HICKS, High School Agriculturist.



At the age of 79 Mr. Sherk does all the work in his apiary.

HALF A CENTURY A BEEKEEPER

BY ETHEL LEARN

My grandfather, J. J. Sherk, who is now in his eightieth year, has kept bees since he was eighteen. His sister gave him his first colony, which was in a box hive; but that winter he lost it. The next summer his father gave him another if he would give him the honey. This was in an old-fashioned straw hive which he made himself. He used these for a number of years until he heard of the "Ott" hive; but he did not have success with that. He then tried the "Jones" hive, which he liked somewhat better, but that winter he lost all he had—fifty colonies.

He then bought another colony, for which he paid $9.00. A friend of his advised him to try the Langstroth hive. This he liked, and is still using.

He has 61 colonies now, and does all the work for them himself. He extracts his own honey with an automatic extractor, which is much better than straining it through a cloth, which he did when he first started. He has had better success these last few years than he ever had, but last year there was little honey in this section.

Vineland, Ont.

THE PREVENTION OF SWARMING

A Sequel to the Law of Swarming Formulated

BY WILLIAM BEUCUS

There was a time when the tipping of tables and the writing of the planchette board were regarded as due to the actions of spirits. It satisfied the craving for the marvelous and the startling. But investigators proved that these phenomena are due to involuntary muscular contraction. Nevertheless there are still to be found those who insist that spirits are the cause.

So it is with swarming. The desire for the occult has caused many of us to look with disfavor upon any explanation which shows that swarming is due to simple causes. We do not like to think of the hard unpoetic work by which swarming may be prevented, and hope to discover some simple sleight-of-hand method by which swarming shall be easily and quickly controlled. To show that the tipping of the tables, writing of planchette boards, and kindred phenomena, as well as the swarming of bees, are due to the action of well-known causes is a cruel disappointment. Nevertheless the thirst for truth compels us to reject the poetic and accept the prosaic.

Some time ago an intelligent beekeeper

informed me that a certain beeman had discovered how to make some slight change in the brood-chamber by which swarming was entirely prevented. This man, I was told, refused to divulge his secret because the crops of honey would be so enormously increased that ruin would overtake the beekeeper. That man died, and his great secret is buried with him. Let us be thankful that he saved the beekeepers from ruin or himself from exposure.

In one of his articles Dr. Miller, after half a century among the bees, says in substance: If any one expects to be told of some easy way to prevent swarming, let him stop right there.

In the issue for Aug. 1, 1911, appeared an article by the writer of the present paper, in which the law of swarming was formulated as follows: Swarming among bees is a migratory habit which operates under conditions which render difficult or impossible the performance of their respective functions by the inmates of the hive. With the light of this definition as our guide, let us see what can be done to prevent swarming.

There are five conditions in the presence of which bees swarm: 1. Uncomfortable hive; 2. Starvation; 3. Insufficient numbers; 4. Poor or failing queen; 5. Crowding.

Let us consider these conditions in the order given. 1. Uncomfortable hive. A swarm placed in a dark-colored hive, in the boiling hot sun, without a shade-board, is almost sure to desert. Often it will also desert if placed in a hive with a small entrance. A swarm hived on starters is pretty sure to abscond; hived on full sheets it is less likely to abscond; and hived on a set of sweet-smelling full combs they never abscond. To prevent that kind of swarming which we call absconding, place the hive in the shade because bees cannot work so well if oppressed by heat. Make the entrance large enough, because bees cannot work if they cannot breathe freely. Do not give starters, because it compels the bees to do some hard preliminary work before beginning with the more important work of housekeeping. Do not give full sheets if it can be avoided, because, although the preliminary work is less than with starters, it is still considerable, and stands in the way of taking up at once the real work of life. If you can do so, give the swarm a full set of combs because it removes every obstruction to immediate beginning of the important work of life. To summarize, make it easy for the bees to begin rearing brood and storing honey. These are the two kinds of labor for which comb-building is merely a painful preliminary. Relieve the bees of that, and they will be contented.

2. Starvation. Bees cannot live without food, nor can they rear offspring if they cannot live. Realizing this they seek a more favorable location. To prevent this, see that the bees have plenty of food at all times of the year.

3. Insufficient numbers. A handful of poorly wintered bees will usually begin brood-rearing, just as will a colony weakened through drifting when set out. It is an inexorable law that the temperature of the center of the cluster must be high in order to mature brood. A handful of bees cannot maintain that temperature, therefore the work of life cannot be carried on. Keep all colonies strong in summer, fall, winter, and spring, and you will not be troubled with this kind of swarming.

4. Poor or failing queen. In the evolution of the bee, those colonies headed by the most prolific queens had the best chance of survival. Prolificness is common to the queens of honey-bees, and the presence of a vast multitude of bees, as a normal condition, has been registered in the brain of the bee. So when a queen fails to lay many eggs, the bees instinctively feel that something is wrong with their queen, that the future of the colony is threatened, and so they begin preparations for rearing a new mother. But for thousands of years the building of queen-cells has been inseparably connected with swarming. Hence a swarm emerges as soon as the first cell is sealed, or even with the emergence of the first queen. To prevent this, keep track of the age of the queens and of their egg-laying. Do not allow queens to get older than two years, and remove all inferior queens. Young prolific queens make it possible for bees to carry on the function of life, raise an abundance of brood, and secure an abundance of food. To prove that a good deal of swarming results from supersedure, remove several queens this year after the honey-flow is over, and you will find that, in from eleven to fourteen days, swarms will issue from some of those colonies while the remainder of the yard will be quiet.

5. Crowding. We come now to what I call normal swarming. I wish to state, in passing, that part of the swarming commonly attributed to crowding is due to supersedure, for queens are replaced by the bees in spring, summer, and fall. If swarming is due to crowding, then of course more room must be given. By so doing we are simply making it easy for the bees to carry on their lifework, and this is all they desire.

Giving room to colonies run for extracted

honey is easily accomplished. Brood may be lifted into upper stories, and empty combs given; but it is not so easy to give room to colonies run for comb honey without sacrificing part of the crop. Shaking the strongest colonies off and allowing them to run in on to full sets of combs, at the beginning of the honey-flow, usually settles those colonies for the season. But if the honey-flow is long and the queen prolific, these colonies may need attention.

It is not at all impossible, however, that an examination every week or ten days will reveal no queen-cells started, in which case there is nothing to do. If queen-cups are found with eggs in them, these may be destroyed and swarming may not take place; but if large larvæ are found in cells it is necessary to take away all brood and give drawn combs in place.

If queen-cells are started, and eggs laid in them, and if they are immediately destroyed by the beekeeper, the bees still store honey. But if the cells become well advanced, the idea of swarming spreads and strengthens—motion gets started in the new direction, with how much force many a beekeeper can testify.

The problem then is psychological. We are first to satisfy the craving of the bees to rear brood, giving plenty of room for the purpose; and as soon as the honey-flow begins, we are to satisfy the craving for storing honey by giving plenty of room above the brood-chamber.

And now attention must be called to something which I do not remember to have seen in print. In their wild state, bees do not labor hard to store honey. They labor to raise bees. The storing of honey is not the object; that is merely an incident. Raising brood is the real object. But man has reversed this. He has made the storing of honey his object, and so it happens that usually swarming comes from lack of room for the queen. The perpetuation of the species is the great activity of life.

To summarize briefly: To prevent swarming, see that your bees are comfortably housed, have plenty of feed at all times, are always strong in numbers, have a good queen, and, in the honey-flow, plenty of room for storing honey and rearing brood, and you will not be troubled much with swarming. To accomplish this requires a good deal of work, but it is the price which must be paid.

Since writing the above, I came across a peculiar verification of the law of swarming as I have formulated it. Dr. Miller tells us that he hived a swarm of bees on a set of drone combs to determine what would happen. The bees promptly swarmed out. Why? Because a condition stood in the way of the performance of the predominant bee function—the rearing of worker brood. It is noticeable that a swarm invariably prepares for the rearing of worker brood, and never builds drone comb until that has been attended to. This condition obviously comes under the heading, "uncomfortable hive."

DESTROYING ANTS WITH CARBON BISULPHIDE

BY ARTHUR E. AULT

On page 70, Jan. 15, E. S. Miles, of Dunlap, Iowa, tells of his partial success in destroying ants by the use of axle grease and kerosene and a plentiful use of fire.

In my experience in keeping bees in Florida I have suffered very little loss from ants.

Two years ago, in one of my apiaries a small red ant was very plentiful. These build nests in the ground, some of the nests being several feet in diameter. They are fierce biters, and it is very annoying to work by one of their nests. The first I observed of them attacking the bees was when I found a weak colony with the comb half covered with the ants. The bees seemed greatly disturbed, and on my next visit the ants were the only occupants of the hive.

Later I formed a strong nucleus in another part of the apiary, when within an hour the ants covered the combs and the bees deserted the hive. I then secured a pint of carbon bisulphide for which I paid 50 cents. With a hoe I dug into the ant-nest until I found the ant eggs, when I poured in a tablespoonful or more of the liquid, closing the hole and covering the nest with a hive-cover to confine the gas, as bisulphide of carbon is very volatile.

Returning to this apiary after about a week I found only a few of the ants, which I proceeded to treat as before. That was two years ago; and though I sometimes see a few ants about the apiary they are not sufficiently numerous to cause any trouble.

As will be seen, this method of destroying ants can be used only where the ant-nests can be located; but in such cases it is very effective.

Bradentown, Fla.

THE ALEXANDER METHOD ADJUSTED TO A CLOVER LOCALITY

BY IONA FOWLS

Since J. G. Brown's defense of the Alexander method for the West, p. 27, Jan. 1, I have watched in vain for an article from a clover locality bearing upon the subject. It just now happens that our honey-flow is from white clover and alsike. Also "we really keep bees and are kept by them." Therefore I shall venture to explain just how we have adjusted the Alexander plan to our locality so that we have been enabled, during the past three years, to systematize and lighten our work, and at the same time to increase our crop materially.



THAT BEEKEEPER CONVENTION.

The members of the "convention," as they stand on and before Mr. Johnson's porch. First on the left, Mr. Wilder; next to him, Mr. Raub, the man who made such a success with an incubator after he was 80 years old; next, Mr. Clute. Last, on the right, Mr. Ratray, from Michigan. Mr. Redout is the central figure in the background. See page 251.

Perhaps I should state at the beginning that we believe it a great mistake to endeavor to prevent swarming. If you will allow the analogy, it seems to me a good teacher recognizes the value of activity in her pupils, and seeks not to prevent it but rather to guide it so that it may work out to their advantage and not to their detriment. Our plan is quite similar.

At the opening of the season we watch very carefully for the first indications of swarming, overhauling each apiary once a week, and giving every colony plenty of room. If queen-cells with eggs or very young larvæ are found, they are torn down. But whenever a more advanced stage is discovered we immediately put our system into operation.

The hive is moved to one side and replaced by one containing foundation or empty combs (preferably the latter). One of the central frames is then exchanged for a frame of brood with the queen but no queen-cells.

At this point occurs our first divergence from the Alexander plan. He advocated putting the queenless colony right on top with nothing but the honey-board between. Now, if we should do that at this time of the season the chances are that the swarming tendency would very rapidly develop into a mania, with the result that we should lose the use of those bees just when we most needed them. Therefore, between the queenless swarm and the lower hive we place at least three shallow-depth supers of empty combs, or probably two, if full-depth supers are used. Should it so happen that we are obliged to use partly filled cases between the two swarms, no harm is done provided we leave plenty of room. However (and this is very important) the super immediately below the old swarm must be entirely empty. The new swarm below now has so little brood and such an abundance of room, and they are so far removed from the nurse bees and cell-builders, that they completely give up the idea of swarming.

Here our method differs widely from Mr. Alexander's. He waited five days; and then if there were any cells with larvæ he separated the two swarms at once. If not, he left them for ten or eleven days before separating, and then one day later he gave

them a queen or ripe cell. Not only would this require rather close attention, but it would also necessitate opening the hive three or four different times. Our plan is simpler. We tear out the capped cells above, leaving all the embryo cells, even those nearly capped. The swarm may then be left for seven or eight days, feeling certain that no queen can hatch in the meantime. At the end of a week the upper story is moved to another location; and in case the stock is poor they are given a cell from a better strain. Otherwise we destroy all but one capped cell; but if time is pressing, even this may be neglected, for the bees themselves will attend to the matter.

For our locality we find this method more efficient than any we have ever tried. Of course we do not raise twice as much honey, but no doubt we increase our crop considerably, for the bees have been given no opportunity to loaf. Moreover, we have early in the season, in addition to the old queen, a young vigorous laying queen. In the original plan, queens had to be provided in some other way; but with our variation of the method we obtain the very best queens possible, for they are raised under the natural-swarming impulse. We find, too, that in running for extracted honey, as we do, the extra supers between the new and old swarms come in very nicely.

It should be noted that the plan is not wasteful. There is no loss of eggs, larvæ, or brood, since at the time the hive is moved to the new location there is nothing but capped brood in the hive. But, more important still, we are no longer worried by natural swarms issuing at some outyard when no one is there to attend to them; because, except for very unusual cases (supersedure, or a swarm with a virgin), we have no natural swarms, and consequently are able to leave an apiary for a week at a time right during the honey-flow. Thus by a plan that is neither complicated nor wasteful, we obtain with less work and anxiety better queens and more honey.

We claim no originality whatever for the plan. We have probably combined the methods of different writers. However, it may be of interest to some to learn how we have dispensed with the inconveniences of natural swarming, and at the same time have retained the advantages.

Oberlin, Ohio.

BEES AND FRUIT; TWO NEW TREATMENTS

BY JOHN W. LOVE

For many years it has been necessary to attack an ungrounded prejudice against honeybees held by fruitgrowers who believed that beekeeping was detrimental to horticulture; but now that the notion has practically disappeared, beekeepers and fruitgrowers together are realizing how closely connected are the interests of each other through the service rendered by the bees. One of the broadest discussions in this field has been furnished by Mrs. Susan M. Howard, who writes on the subject, "Honeybees as Pollinizers—a Valuable Adjunct to the Horticulturist," in Apiarian Inspection Bulletin No. 8 of the Massachusetts State Board of Agriculture (June, 1914).

Along this same line, but narrower and more scientific in treatment, is an investigation in the development of the apple from the flower, and the value of the honeybee as a fertilizing agent in a paper of the same name, written for *Better Fruit* by O. M. Osborne, and reprinted by The A. I. Root Company.

"To-day the honeybee is more and more considered an invaluable ally of the farmer," writes Mrs. Howard. "The orchardist and small-fruit growers consider their colonies as a part of their equipment, and their use as much a factor in the success of horticulture as is cultivation, application of fertilizers, the growing of cover crops, pruning, spraying, and the like. To the farmer, especially if he be a fruit-grower, a honey crop may be regarded as secondary or as a by-product, while to the beekeeper it is a primary product; thus while the ultimate aims of the horticulturist and beekeeper may be different, yet they are interdependent."

On account of the uncertainty of service by accidental visits of bees, the forehanded fruitgrower now provides a sufficient number of colonies not far from his orchard, if not actually under the trees. Although bees will forage for honey a distance of six miles from the hive, if necessary, it is better to have them at close range, since they prefer short trips, and do not completely work a circle of six miles in radius.

Besides the nectar, bees are in search of pollen as a food. This is a highly nitrogenous substance supplying nitrogen and phosphorus—two elements needed to sustain any kind of life. To be sure, this

pollen is provided vastly to the excess of the actual needs of bees; but its seeming over-production may be explained on the ground of an effort on the part of the plants to insure pollination.

The search of the bees for food is the occasion of their inestimable service to the fruitgrower through their unconscious part in pollination. The process is entirely mechanical, and could be performed by human labor, and has been; yet the labor of the bees is not only far more effective but incomparably cheaper. Growers of cucumbers in Massachusetts greenhouses use colonies for this purpose alone.

Turning now to the fertilizing process itself, the botanist recognizes three varieties of sex distribution in flowers, viz., (1) Both sexes in one flower, as where the stamens (male), and pistils (female), are both present and complete; (2) Sexes separate in individual flowers, but both sexes on the same plant; (3) Sexes separate on individual flowers, which are borne on different plants—a further modification of the second class. Some plants, therefore, are only male; others are only female.

Since most of our fruits and vegetables involve a sexual process in the union of the pollen and germ of the egg, there must be some means of union, especially in the second and third classes of flowers, where the sexes are separated, either in individual flowers or in individual plants. Of all the insects furnishing this means, the bees are recognized as the most important, and should be provided by the grower of fruit.

The wind is effective in transferring pollen from blossom to blossom in those trees and plants having a fine and dry pollen, as, for example, the pines. Trees which are wind-pollinated are usually independent of insects; but among fruit and vegetables the pollen is usually heavy and sticky, and depends upon an insect, usually a honeybee, for its transference. Experiments show that little or no apple pollen drifts in the wind.

The honeybee seeking nectar far down in the flower covers herself with pollen from the stamen, or male organ of the flower, and gets it against the pistil, or female organ of that or some other flower. Thus quite accidentally has the function of the bee been performed. In this vital operation the union of the pollen left on the pistil with the ovule within completes the process of fertilization and results in a perfect seed.

Many plants are sterile to their own pollen, and require pollen from another source. Furthermore, self-fertilization is found to tend to weaken the offspring, and, in contrast, crossing or cross-fertilization is found to result in greater strength and productivity. Moreover, flowers are generally constructed to favor cross-fertilization and to prevent perpetual self-pollination.

In mixing varieties of pollen, bees serve to create new crosses and to increase varieties.

One of the most practical points brought out both by Mrs. Howard and Prof. Osborne is the fact that the apple requires five independent fertilizations for complete results. If many ovules fail to fertilize, the apple will lack size or symmetry, or both. Thorough fertilization prevents the dropping of apples.

While the number of full-blooming trees in a cluster has much to do with drawing the attention of the bees, yet high color or fragrance do not always act similarly.

It has sometimes been contended that the honeybee damages the fruit by biting into the skin and sucking out the juice. It has been shown, however, that the jaws of the bees are so constructed that it is entirely impossible for them to bite into the skin of any kind of fruit; but when the skin has once been broken the bees have an opportunity. The jaws of the bee are smooth and rounding, and quite unfit to make an opening of any kind. Wasps and birds are guilty of making the opening in the first place, and fruitgrowers should not blame the bees for this damage.

The bulletins close with remarks on spraying during blossom time.

THE INCUBATOR IN QUEEN-REARING

BY DR. BRUENNICH

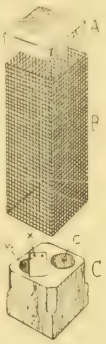
The view of J. E. Hand concerning the use of the incubator as a queen-hatcher has my full approval. Many years ago I gave to the nuclei, not cells, but queens hatched in an incubator, and I find the advantages considerable. After my experiences the losses with young queens are not nearly so great as the losses with cells. When a new nucleus is formed it is with my methods extremely rare that a young queen is killed, be she one, two, or more days old. The most important requirement is that the bees of the nucleus be young. For this purpose I take the bees of the super, and am sure

to have success. A freshly formed nucleus with such bees will accept every queen. It is somewhat more difficult to give an unfertile queen to a dequeened nucleus; and I agree fully with Mr. Hand, that it is not advisable to give another queen before three days elapse after dequeening. In this case I give the young queen in a wire tube, but do not let the bees come to the candy before one or two days. I give candy enough so that the bees have at least 24 hours for eating it, so I have only insignificant losses. The losses come later when the young queen flies out, and if there are but few traces of robbery. In such a case the queen will be balled and stung. But that is exactly the same if I have given a cell or a young queen.

A great advantage of this method with hatched queens is that the young queen can be minutely examined before giving it to a nucleus. A queen which has not the needed characteristics of the desired race is eliminated, and so is, of course, each one which is minus a claw or has a deficient wing. Furthermore, I mark each queen before giving her to a nucleus. Marking is much easier with a freshly hatched queen than with a fertile one, not to speak of the greater nervousness in the latter case. This is very important for me because it gives the possibility (when marking the queens differently) of making interesting observations.

As to the temperature of the incubator, I have, as a rule, 90 degrees F.; but it is necessary that the cells be just the same height as the thermometer, because (at least with my incubator) the higher up the thermometer, the higher the temperature.

For each cell I use a little cage consisting of three parts—the wooden cover A, where the cell is fixed with wax, the square wire tube B and the foot C. The latter is of wood and has two holes which have been well waxed, one for candy, the other for water (w). The water-hole is partly covered by a piece of foundation to avoid the drowning of the queen. In the incubator I put some wet blotting-paper to secure the necessary humidity of the atmosphere. If I have many cells I fill the cage with bees, which may easily be made on an alighting-board, having in one hand A and B (with the cell); in the other, C, on going with the under edge of the wire tube along the board, so catching the bees. In cages with bees I can keep a queen for several days; but it is better not to let her stay longer than one day in the warmth of the incubator, but to put the cage in a dark place at about 60 to 70 degrees F.



The late Dr. Kramer was much opposed to this method of letting the queens hatch in the forbidding, solitary place of a dead incubator. He thought that the sympathy of the surrounding bees in the hive had an influence on the strength and qualities of the young queen. This view is very romantic and poetic, and ought certainly to be adopted with the eggs of hens and geese; but I must confess that I, for my part, have never seen any bad effect on my queens. Most of them show the fine qualities of their parents, and often become four years old, but not older, according to my observations, till to-day. There are beeman, however, who pretend to have had a queen which lived six years. Have any of the readers ever seen a queen older than four years?

Zug, Switzerland.

SOME COMMENTS ON RECENT DISCUSSIONS

BY J. A. BOWEN

So far as I can ascertain the season of 1914 has been the worst ever known in this region, due, I believe, to the cold summer. May and June were like winter. The bees were getting just enough nectar to keep body and soul together. I am wondering whether the season had any thing to do with such a general balling of young queens. In looking for eggs on the thirteenth day I would find the queen in a frantic ball of bees. Some I rescued, many were killed. This freakishness became less evident as the season advanced.

Another feature that caused lots of annoyance was when I took a frame of brood from the center and replaced it with drawn comb or full sheets of foundation. In three or four days, instead of being filled with eggs, as at other seasons, it acted as a division-board. The bees filled it with honey, and on the queenless side started queen-cells. In several instances queen-cells were found in the supers, showing the bees had carried eggs through the excluder.

Many reasons are given why so many young queens fail to return home after

making their nuptial flight. I have tried every plan suggested except hoisting flags of different colors, but all to no purpose. My hives are in rows of pairs, six feet between each pair, and nine feet between the rows. Sometimes from a batch of cells I get nearly all of them mated; at other times not half. The past summer I had three eight-frame hives divided into three parts, each part taking two frames, with entrances facing east, west, and north. Sometimes I could get nine queens from nine cells mated; at other times not more than four or five, all raised, apparently, under the same conditions. On page 324 the editor says that during April at Pompano 90 per cent of the queens are killed by dragon-flies. We have millions of such flies here. The loss of queens may be from the same cause.

On page 345 E. R. Root describes the Marchant scheme for transferring from box hives. Our plan is as follows: Approach the box hive, give it a little smoke; tear a piece off the top, the larger the better; then place the eight or ten frame empty super on top and smoke the bees at the bottom. In a minute or so, up comes the queen. As soon as she is safely on the sides with the mass of bees, lift off the super, put an excluder over the old box, replace the super, and fill it with combs.

That's all. Easy, isn't it? no sawing nor waiting days for the bees to go up when they are ready. They go up when I am ready. In twenty-one days remove the box.

One more proof to that of Mr. Freeborn, page 723, that bees do discriminate against black. On one occasion a number of angry bees followed me to the house. As I neared the back door, two cats, one black and the other mostly white, lay sleeping on the steps. While I was some feet away the black cat jumped up and made a lightning leap for cover as though in a fit, while the white one just opened its eyes and yawned.

One of the best drinking arrangements for bees I know of is a trough or iron washtub. Put in a little sand or soil; throw in a few roots or slips of parrot's feather. In a short time one has a dense growth of one of the daintiest water-plants, and at the same time it gives the bees a chance to get a drink without drowning.

That rain-barrel cistern for the beeyard, page 909, may be ideal for Alabama; but for California it is useless. We don't look for rain from the end of March till the end of October.

A. C. Miller's wire bee-veil, page 810, works well in violent wind storms, of which we get many during the honey-flow; but with the temperature at 110 for weeks I can better endure the stings than the weight of the veil. Coming in from the apiary one day with a severe headache, due to the heavy veil, Mrs. Bowen's mother, a clever woman, took a piece of cheese-cloth, put in a black net in front for the eyes, and round the whole veil sewed a light spring wire about on a line with the lips. I never wore any thing more convenient and sting-proof.

Dixon, Cal.

AN OUTLINE OF HONEY SUCCESS

BY FRED LEININGER

The question is often asked by beginners, "How shall I produce a honey crop—can I make more money on extracted than on comb?" It is not a question to be answered offhand. A number of things must be taken into consideration, and then it will generally be left to the beekeeper to decide for himself.

The fact that there are experienced and successful beekeepers producing extracted honey is pretty clear proof that they find extracted more profitable than comb; but there are also experienced and successful beekeepers who produce only comb. Just as clearly they deem comb more profitable for them.

It may be well to mention some of the items that are factors in the case, other things being equal. Comb honey has a preference because it brings a higher price —perhaps a half more. On the other hand, it is generally believed that a half more of extracted than comb can be produced, though some say this difference is not so great. The location of the market has something to do with this, since there are localities where a pound of extracted brings nearly if not quite as much as a pound of comb honey. In some regions the nectar-flow is of short duration, but comes in a flood while it lasts; in others the flow is light but long continued. The former is favorable for comb, the latter for extracted.

The beekeeper must to some extent cater to the wishes of his customers. Where the harvest is mostly of dark honey of strong flavor, the preference is for extracted honey. Such honey may be sold for baking purposes while lighter honey is desirable for sections. It requires more skill to

produce comb honey, and more labor in the apiary during harvest. The swarming problem is vastly more troublesome with comb than with extracted honey.

Four essential factors enter into the securing of a crop of honey. First, a sufficient amount of healthy and well-nourished nectar-secreting plants within easy range of the apiary. Second, weather conditions favorable to nectar secretion and bee-flight. Third, a large number of workers in excess of those needed for the work of the colony. Fourth, colony conditions making the storing instinct dominant.

Every operation of the season should be directed toward securing the greatest possible number of vigorous workers at the proper time.

Let me say that, if the beekeeper follows these simple rules, he will secure a crop of honey which will help to make the old world happier and sweeter.

Fort Jennings, Ohio.

SHERLOCK HOLMES ON A BEE-TRAIL

BY THE AMATEUR

The beekeeper who has never indulged in the pastime of hunting bees has certainly missed one of the most delightful of all outdoor sports. Interest is always keyed up to the highest pitch. There is always the possibility that the bees are in the next tree beyond. When the bee-hunter gets on a "hot trail" darkness alone will cause him to give up the quest.

If the farmer who doesn't feel like going down into his pocket to pay for a few colonies would just go into the woods, hunt them in trees, and get some beeman to help him put them into modern hives, the experience would go a long way toward making his beekeeping a success.

There is no finer outing for a boy than a bee-hunt. If a lad can be encouraged to go into the woods and hunt for himself a colony of bees the persistence and self-reliance which prompt him to follow the hunt to a successful conclusion will go a long way toward making him successful in the care and management of the colony, and, perhaps, will be the first stone on which will be built a future occupation.

Some one may say that it is impossible to find wild bees in his locality. It is very doubtful if there is a square mile of timber, either virgin or cut-over lands, where forest fires have not run recently, that has not one or more bee-trees.

If the bee-hunter can find where bees have been watering on fresh water, and notice their course from there, it should be comparatively easy to find the tree. Still it was under just such circumstances that "Pennsylvania Jake" had his hardest luck.

Not so long ago I became greatly interested in bees and every thing pertaining to them after I had been presented a bee-book. "Langstroth on the Hive and Honeybee" —one that was read and followed by my grandfather. This led to my reading all I could find on bees. From reading the books I went into the woods, and, with no previous experience, found sixteen bee-trees one summer, and did a boy's work in a lumber-camp besides.

Toward the close of summer, one evening we had word that the railroad could furnish no cars the following day, so that meant "a day in the straw." Pennsylvania Jake came to my door and said, "By gosh, dogs! what are you going to do to-morrow?" Then he told me of a hybrid "bee" that was located about two miles up in the timber somewhere, but that he had been unable to find it, though he had been trying every "day off" all summer, and the year before, too. It was watering on fresh water, and surely it didn't go far; but he said he was sure he had examined every tree for a mile and a half in the direction they flew.

The reader may be sure I speedily consented to go along, for Pennsylvania Jake was the most famous bee-hunter of that locality. He had found unknown scores of bee-trees. A bee-tree he couldn't find was some tree!

In my dreams that night I could see bee-trees everyhere. The night was far too long, but morning came at last. We had breakfast, stuck a lunch in our pockets, and were off. I carried a small box with a hinged cover. In this I placed about a pound of honey. I also had about an ounce of aniseed oil, which I had been told was very good to use in bee-hunting.

Arriving at the small fresh-water spring where the bees had been watering so long, behold, the first bee of the morning came also.

It might be well to state that the spring was located at the edge of the large tract of timber which had been recently slashed and the bark peeled, leaving the hard wood alone standing. This adjoined on an east-and-west

line a very large tract that had been cut over years before. North of the line was the old timber tract cut over at a time when hard wood was almost valueless. Consequently there was a very heavy growth on the old timber tract right down to the spring, while the underbrush had grown up thirty feet high.

The first bee arose and started straight down the edge of the old tract, but on the side recently cut, in a westerly direction. There was an old timber road cut on the edge of the slashing, running parallel with the line, and the bee flew about six feet above the ground along this road. We could see her for an eighth of a mile. We sat down till a few bees came and went. All went in the same direction till about a dozen bees had come and gone. One bee seemed uncertain which way to go, and at last went in the opposite direction. "A mighty good course," said Jake. "Let's go."

Now, I had been thinking mighty rapidly for a boy, and concluded that this bee-tree was not where it seemed to be or Jake would have had it long ago. I noticed that when the bee going in the opposite direction got about six rods away, or just past the heavy timber, it swung around in a northerly course.

"Which way?" I asked.

He looked at me in surprise. "Why, the way the bees are going, of course."

It was then that I explained to him that it was my conviction that the bees were northwest of us. There was a tract of very heavy timber near the spring; and the underbrush being so heavy the bees preferred to fly around the timber to flying over it when heavily loaded. "I understand that," said Jake; "but them pesky hybrids never go out of their way that far, and you kin bet all the bees you find on that side uv the woods."

Jake hesitated, then said, "Go ahead and try it."

I went back on the line to the spring and waited for another bee to start on the opposite line. I followed it back, saw it curve around the timber, and went right after it. After following through an opening on the east line of the old tract for about a quarter of a mile I came to quite an open place in the timber. Then, looking up, I saw a bee fly through just above my head in a westerly course and almost parallel to the strong line from the spring. I followed till I imagined I must be about forty rods west of the spring and eighty north. Here I began to examine every tree carefully. The underbrush hindered me greatly; but I would look for a small open spot in the timber and look until I saw a bee.

Finally I noticed a loaded bee make a slow half-circle and disappear in the underbrush. I rushed after her, and, pulling back a small birch-tree, saw them going into the body of a big chestnut-tree from both sides in a perfect stream just about thirty feet from the ground. I let out a yell that brought Jake. After looking at them for a while he said, "By gosh, dogs! that's the biggest fool bee I ever saw. They are yours."

That was our first bee-hunt together, but it was by no means our last. I went home happy to think I had beaten one of the most famous bee-hunters in that part of the country.

THE GRAND OLD MAN OF BEEDOM

BY GRACE ALLEN

Four score and more the years have passed, and left him with his bees,
With wonder-working sunlight on the wonder-laden trees;
And life to him has meant not crowds, nor hurry of the town,
But space to see the sky a bit and watch the sun go down,
And time to pause in clover-fields when bees are flashing by,
And will to work, and soul to laugh. (He hath a merry eye!)
Right sturdily and heartily he works with bees and pen,
And through it all he loves his God and all his fellow-men.

Who is this genial man, you ask, of honest-hearted fame,
Whom all the bee-folk of the nation speak about by name,
Who lives in large simplicity of worship, work, and joy?
He's Dr. C. C. Miller, of Marengo, Illinois!
The Grand Old Man of Beedom! He's the Grand Old Man of Beedom!
His life is a happy harmony of worship, work, and joy,
With fun and fame and freedom—he's the Grand Old Man of Beedom,
Our Doctor C. C. Miller, of Marengo, Illinois!

Heads of Grain from Different Fields



The Backlot Buzzer

These city-bred bees soon learn to discriminate. They know there is no nectar in the flowers on a lady's hat, but the grocer says they'd work the combination on his cash-register if there were any honey in it.

Feeding Honey Candied in the Combs

I have a lot of honey sugaring in my brood-comb. What can I do about it? I certainly hate to cut the comb out and throw it all away. Last fall we had a heavy honey-flow in October from what we call frostweed. It is this honey that is mainly turning to sugar. I have several hives with full combs from dead colonies. I wanted to keep these for feeding purposes in the spring. It is all turning to sugar.

Another thing, several colonies have all died, and others are weak. What is the trouble? It is not dysentery. They just gradually die out during winter, and leave hives of honey.

Winston-Salem, N. C. JAMES NIFONG.

[The frostweed to which you refer is the common fall aster. Honey from this source is causing serious trouble all over the North and East, and is, no doubt, the cause of your bees dying. They probably do not show signs of dysentery with you because they get frequent days when they can fly out, and yet not warm enough to void themselves successfully and get back into the hive. This would cause the dwindling to which you refer.

If you wish simply to save the combs in which the honey is candied, and do not care particularly for the honey, wait until warm weather; uncap them, and hang them in the middle of the brood-nest of your colony. The bees will quickly clean them out. They will, of course, at the same time consume a large part of the honey, but will throw the harder portions out. In case you wish to use them for stimulative feeding in the spring, uncap them and hang them in the center of the brood-nest as in the above-mentioned plan, and return to the hive every two or three days and remove these combs and dip them in warm water. This will help dissolve and dilute the candied honey, and the bees will remove it and use it. Before placing the combs in the hive they should be marked so that you can readily remove them without disturbing the others.—ED.]

More Hints on Binding

On page 37 D. W. Howell gives a very good suggestion for binding a file of GLEANINGS with nails. But he tells us to make the bottom edge even. It will be better to make the top edge even, so that it will gather less dust when it stands on the shelf. The bottom edge does not need to be any evener than it can be made by trimming the extra-long ones with shears. It will be still better security against dust if you have the top edge cut smooth after the volume is fastened together; and if at the same time you can cut the front edge smooth, turning the leaves to find a desired page will be much easier. To cut a block of paper smooth, clamp it as tight as possible in any sort of vise or clamp, and then cut close—not a sixteenth of an inch away, but close—to the line along which the vise holds it. Any thing that will cut will do; but it is much better that the knife be either sharp or driven by a strong power; and even with strong power it is better to have it sharp. That is why the printer, especially if he knows there are nails in the thing, would rather cut the edges for you himself than trust you to handle his cutting-machine.

If you don't have stiff sides, the outside pages will soon get ragged with pushing into place on the shelf. So put on pasteboard sides, holding them on by a cloth back glued to them, or by a cloth that goes over back and sides both. The nails can go through the cloth, or the cloth can be glued on over the nails and hide them; but if you put it over the nails I advise you to see that the very best glue holds it to the pieces of leather that Mr. Howell told you to put under the nail-heads.

Ballard Vale, Mass. STEVEN T. BYINGTON.

Cotton Cushions Effective Protection

We have noticed H. G. Quirin's inquiry on the use of cushions for the protection of the bees, and in reply would state we have been using these for the past eight years, and find they work wonders in protecting the bees both in winter and summer. We use the telescope cover with one of these cushions over the super cover the entire year, and have never had a colony freeze in the winter nor a comb melt down in the summer, although we have had weather below zero.

In this way our bees are protected from any sudden changes in the weather, and we find they build up earlier in the spring and later in the fall when they have this protection.

Louisville, Ky. J. P. MARTINE & SON.

Finds Drones Out Early

While I was in my beeyard on the 11th of February, a fine day, I found to my surprise a number of drones flying out of one of my hives. Evidently it was their first flight. On the 13th I again found drones coming out of that one hive, but none from any of the rest of them. These are the only drones I have seen in this locality. If I had a queen to be mated within the next four or five days I am sure I should have no difficulty.

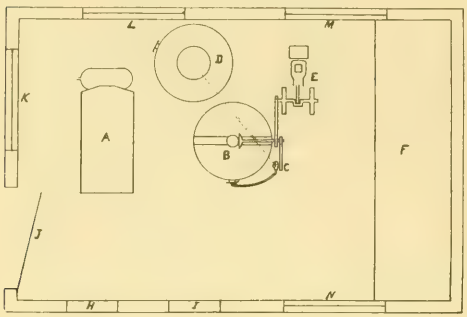
Mathews, Ala. M. S. WORDAN.

Wants Plan for Extracting-house

Please give me a good plan for an extracting-house.

Escondido, Cal. SAM SAKUTT.

[There are many possible arrangements of the fixtures in an extracting-house, and it is hardly possible to recommend any one arrangement that would suit every one. The drawing, however, shows the floor plan of an extracting-room, which is very convenient. This is for a building 12 x 18 feet. A smaller room would answer the purpose almost as well, but the larger building costs so little more that it is economy in the end.



FLOOR PLAN OF 12 x 18-FT. EXTRACTING-ROOM.

(A) Capping-melter; (B) honey-extractor; (C) honey-pump; (D) tank; (E) engine; (F) bench; (H, I) small opening with wooden doors for passing supers in and out; (J) door; (K, L, M, N) windows.

There should be two shelves at least three feet wide running the entire length of the building, and located on each side above the windows, perhaps seven feet high. These shelves permit the storing away of such articles as are not in use, in order to leave the floor clear for the work at hand.

Remember that there should be no screens at the door. Glass may be used if necessary for light, but the screen should be at the windows only so that there will be no bees bothering about the door during extracting time.—ED.]

Has Lost No Colonies on Account of Aster Honey

The bees here have been flying a little nearly every day for a week or more. I was afraid they were not going to winter well on the aster honey, as some of them were showing signs of uneasiness and dysentery. I haven't lost any on account of the stores. I lost one from queenlessness. Not over half a dozen colonies in my 80 could be called weak.

I have four nuclei that I wintered in the cellar on aster honey. They are in fine condition. I have them outside now.

The bees are carrying in something that looks like brown pollen. They will not touch flour.

BYRON S. HASTINGS.

Brookville, Ind., Feb. 23.

Sweet Clover in Kentucky

It is one of the prettiest sights the eye ever beheld to see from five to ten acres of sweet clover in full bloom, bees coming and going. Our county has always had more or less of sweet clover. It soon restores old waste land, so that in a few years it will raise splendid corn, wheat, and tobacco.

If the writer of the editorial, page 48, Jan. 15, will call on me in June I will show him a sight hard to beat. I will take him through Pendleton and Robertson counties. The statement that they grow nothing else is, I think, a little strong.

We have white clover, smartweed, and Spanish needle. I do think there is too much tobacco grown in the three counties. Let him come about the middle of August and he can buy sweet-clover seed by the carload.

Brookville, Ky. L. T. RICE.

Success with Soft Candy

The temperature reached sixty here to-day, Feb. 13, and what a fine flight the bees had! They have come through thus far remarkably well considering the cold weather. A few show symptoms of dysentery. For this reason I made up fifty pounds of soft candy by Dr. Gates' formula, and gave to about that many colonies a pound each. I tried it last spring on ten colonies, and found it remarkably good to cure dysentery and bring them through spring weather in good order. In fact, I believe it saved those I tried it on last spring. For that reason I gave it to more this time, believing it would help them all.

In relation to Straw, p. 95, Jan. 15, I know Dr. Miller's great crops of honey, and his success as a keeper of bees. I desire to sit at his feet and learn; and while I know he has eight-frame hives in his yard I never think of him as an eight-frame-hive user from the testimony I have gathered from himself and those who have visited his apiary. Rather he uses sixteen frames in the two hive-bodies. Many times I have read his reply to the beginner's question, "What size of hive shall I adopt?" He always advises a size larger than an eight-frame, and rather apologizes for using it himself.

Urbana, O. O. J. JONES.

Home-made Bee-gloves

Without suitable bee-gloves, and not able to get them of the right size, I sewed long wrists with rubber in the top to a pair of common six-cent canvas gloves, then melted some beeswax and soaked them in it. The bees rarely try to sting the wax-coated surface, and it is practically sting-proof, as at the most they can only prick through, not stinging to any depth.

The best thing I can do for a bee-sting is to squeeze it until the blood starts. This seems to get the poison out of it. A solution of chinosol removes the soreness for me the best of any thing I have found. If not attended to, stings poison me badly, and this grows worse the oftener I am stung.

Glover, Vt. JEAN WHITE.

Is Honey Capped Air-tight?

The value of bottled honey as a food might be greatly affected by the knowledge as to whether honey-cappings are absolutely air-tight. Can you give any method by which definite determining tests may have been made?

Ft. Smith, Ark. L. E. KERR.

[The principal proof that the cappings over honey are not absolutely air-tight lies in the fact that, when comb honey is stored in a damp cool place, the honey absorbs moisture from the air, becomes thin and watery, and oozes through these cappings. If the cappings were air-tight this could not happen.—ED.]

Ohio Bees Gathering Pollen in February

February 21 our bees were gathering pollen and nectar. The temperature was 52 in the shade. This is the first time in thirty years when bees gathered pollen this early. It is remarkable, considering this cold winter. The bees so far have wintered well.

Lima, Ohio. MRS. J. A. MOONEY.

A. I. Root **OUR HOMES** Editor

A. I. ROOT A BEEKEEPER.

It sounds a little funny (does it not?) to be told, after I have been fifty years or more before the world as authority on bees, that I am really and truly a *beekeeper*. Well, just now I have *several* "funny" things to mention that are happening down here in "sunny Florida." Yes, and that very expression, "sunny Florida," that you see just now in the advertisements of Florida lands, is about the funniest of them all. Tourists who come down here this winter for the first time ask with a long and solemn face, "Where is your sunny Florida we were led to expect?" etc. Well, this winter *is* an exception. Things are "sorter turned round." We have not only been having big rains and floods in the winter, but we have (*even here*) "rainy days," sometimes *two* in succession, with "nary a glimpse" of sunshine. "Overhead irrigation?" Bless your heart, *we* have it, and it doesn't cost "nobody" a cent.

Well, my "apiary" that I proudly show to visitors is a little funny, also, for it consists at present of a single three-story hive, and robbers have been so bad *right here* I have hardly dared open it for two months past. Pollen has been coming in, however, more or less, all winter when it hasn't rained. I have sat and watched the bees bring in pollen (heavy loads) with almost as much keen enjoyment as when I used to hold "Blue Eyes" close to the entrance and explain to *her* the "mysteries" of the beehive.* Dear me! Blue Eyes is now a matronly mother of two boys, one of them taller than his mother; and the other just now as intent on studying the heavenly bodies as his mother and I were with the bees, almost fifty years ago. Orange bloom is just coming on now, and the robber bees are, I hope, earning an "honest livelihood."

Here in Bradentown we have recently started a *bee convention*, and there are *several* funny things about this "convention." One is, they hold a session (or did) once a week. Another is, there are often less than a dozen in attendance; and a *third* funny thing is that, in this funny little *weekly* convention we have one of the biggest beekeepers in the world. He reports *3000* colonies, and *53* out-apiaries in Georgia and Florida. See Feb. 1st issue for particulars. We have also one beekeeper in this county who owns and manages about *700* colonies in something like a dozen apiaries. One of the subjects discussed was how to increase as rapidly as possible down here in Florida, where one has only a few hives to start with. The letter below opens up the subject:

Dear Mr. Root:—In accordance with your suggestion I bought a nucleus last summer. They are fine fellows, and are doing well. This season I want to increase.

Can't you give us some articles in the *Florida Grower* or in GLEANINGS especially suited to Florida conditions? I have an idea there are many in Florida who need some help in addition to the A B C and other books.

Clearwater, Fla., Feb. 3. S. H. EAST.

By way of an answer I will mention how I got my one colony. My neighbor Ault sold me a colony of nice gentle Italians; but before taking them away he removed a frame or two of brood and bees which he placed in another hive on the old stand, thus giving them all the returning bees. This made a very good nucleus, and they soon had a young queen that was successfully mated, even in December. Of course, one would be considerably ahead if he had an extra queen to introduce; but while no honey is coming, the loss of time is no very great thing.

Now, *here* is a "funny thing" that it may be profitable to consider. While Mr. Ault declares he can raise queens and *have them fertilized* all winter long, down here, no one has ever yet, so far as I can learn, offered to furnish young queens all winter long. All through March, April, and May there is always a great call for young queens, and no one has as yet gone into the business of supplying them. If I am mistaken, if he will stand up and speak I will gladly give him a free mention.

The last and perhaps the "*funniest* thing" of all about our "convention" is that a bountiful supply of very nice nuts and candy is placed on the table just before adjournment, and everybody "participates." The convention goes about from house to house, or from apiary to apiary. Our host explained the nuts and candy are to induce busy beekeepers to come. Isn't this really a "funny world," any way, and does it not behoove us all to be neighborly, and "have fun," instead of quarreling and *killing* each other?

EDISON AND HIS RECENT FIRE, ETC.

In view of what I said about Edison in the Dec. 1st Homes, our readers may be interested in the following, which I clip

* She was the baby that used to sing out, "Out doors, I do! out doorses, I do!" almost as soon as her papa came in sight.

from the Bradentown *Evening Journal*. Perhaps I might add that both Edison and his good wife came from Ohio near our Medina home. He is eight years younger than I, so I have been able to keep pretty close track of him from childhood up.

Speaking of the incidents of the fire, Mrs. Edison said:

"Mr. Edison came back from the fire shortly after midnight. Then he went to his room and busied himself all night with plans for new buildings. At 5 o'clock he decided to go to bed, but in a few minutes was up again.

"He wanted to rush down to the factory and get busy with his men. I begged him not to go down. Then I telephoned to the office and told them to replace to their natural positions all the books and other office belongings which had been removed. I wanted every thing in such condition that it would appear natural when Mr. Edison went to his office. All the time he was insistent upon going down, but I calmed him down and kept him here.

"At 10 o'clock they telephoned from the office that every thing was about straightened out, and for him to come down. But at that time he was all tied up with reports and plans, so I did not tell him. At 1 o'clock he went to sleep. He is up in his room now, and he will not be disturbed for any thing in the world."

It is true that Edison's losses are small in view of his wealth and prestige and power—a mere trifle in comparison with the losses which come to the humble ditch-digger and his family when their humble home goes up in flames and smoke.

But Thomas A. Edison once was a poor working boy. There is inspiration in his life, and attainment for every boy and young man who has a place to achieve in the world.

There should be an inspiration in his life for those who willingly fall into the "has been" class at forty.

Thomas A. Edison is an old man, according to the calendar as the world counts time.

He is not a quitter.

Every little while I say to Mrs. Root, "Sue, here is the kindest and most encouraging word for the Home papers yet;" but the letter below, I verily believe, "caps the climax."

Dear Uncle Amos:—Of course you didn't open this yourself; but I hope the busy helper who *did* will stop reading this right here and send it to you in Florida. I have loved you since I used (away back in 1884) to sit on my father's lap and read GLEANINGS with him. He has long since gone to his reward. The old home is occupied by strangers, and has no orderly beeyard. I was the youngest child of Stephen Luther, whose magazine at that time was directed to Fairview, Erie Co., Pa. Later it was Girard, same county. He always felt sure of goods from "Root's," and enjoyed the whole of GLEANINGS, but especially Our Homes. This morning I was looking through an old book of his and found a copy of the description of his device for lowering swarms from treetops by means of a basket and pulley, etc., which you at one time published. Can you imagine the tug at my heart, and how blessed memories came flooding back when I found in the February copy of *Ladies' Home Journal* the advertisement of A. I. Root, etc.?

Your children were near my own age. And just as they were growing up, helping you and getting educated, I was growing up, learning the bee business with father, getting some education, and learning to love to try to serve the heavenly Father. I may be imposing on your good nature by writing all this, but I am choking back the tears which just the line, "*The Home of the Honeybee*," in that advertisement brought. I really feel that you are an old and very dear friend. Father and mother are gone, but I hope you are well and as happy as a true child of God has a right to be. How many years you have been "standing on the promises," and seeing them fulfilled! I am very glad I ever knew you through the "blessed bees." Dr. Miller and Emma, Hutchinson, Doolittle, and many others who wrote in GLEANINGS were familiar to us, but I never got so close to any of them as to you. How often mother's voice broke as she prayed our Father to prosper you for the sake of this work which you were able and eager to do. Father used to wish that you would "wheel" to our place, but you were always so busy that he never dared write an invitation to do so. It is so long since I donned a bee-veil or saw a copy of GLEANINGS that I do not know what the world of beekeepers are doing now.

If you are the same in disposition as when I learned to call you Uncle Amos you may be interested in hearing that one of your early readers is here in the oil region, and the mother of five sturdy youngsters.

I know you would have enjoyed last New Year's day if you could have been in the midst of fourteen girls from my Sunday-school class who spent the day with me.

I wonder if you are as enthusiastic a driver of automobiles now as you were a rider of bicycles years ago. Perhaps you might be tempted to visit Bradford next summer, and drink some of the cold water which comes up 200 feet when oil-wells are driven in this locality. I should be as glad to welcome you to Mapleside (as we call our home) as though you were really and truly my Uncle Amos, as I learned to think of you years ago.

The last copy of your magazine father ever sent me told of the Buttercups you were experimenting with. MRS. SARA GERTRUDE GREENWOOD.

Bradford, Pa.

A KIND WORD AND SOMETHING MORE FROM AWAY OFF IN MONTANA.

Mr. A. I. Root:—Just a word of kindly appreciation for you for the Home papers. I have never missed reading them for a number of years, and often they are all that I find time to read. They have been a great help to me; and that article, "The Defeat of Injustice," the first one, went into my scrapbook and into my life. I have 50 copies of the booklet, and will use them for free distribution soon in the Sunday-school.

Two years ago while on the Pacific coast I came across the enclosed Lord's prayer, and made a few purchases at the time at 50 cts. (on satin) in the new *Times* building, and now I have them for free distribution on a limited scale. The *Times* editions were repeatedly exhausted, and even at 50 cts. I had to place orders ahead for even a few copies. I never tire of reading this composition, and trust that it will be of much pleasure to you.

Corvallis, Mont., Nov. 10. E. H. SHELDON.

THE LORD'S PRAYER, WITH A "READING BETWEEN THE LINES."

The following beautiful composition was captured during the war at Charleston, S. C. It was printed on heavy satin, July 4, 1823. It was picked up by A. P. Green, of Auburn, Ind., at Corinth, Miss., the morning the rebels evacuated it, May 30, 1862.

Thou to the mercy-seat our souls dost gather
To do our duty unto thee.....*Our Father.*

To whom all praise, all honor should be given;
For thou art the great God....*Who art in Heaven.*

Thou by thy wisdom rul'st the world's whole frame;
Forever, therefore.....*Hallowed be thy Name;*

Let nevermore delay divide us from
Thy glorious grace, but let.....*Thy Kingdom come,*

Let thy commands opposed be by none,
But thy good pleasure and.....*thy Will be done;*

And let our promptness to obey be even
The very same.....*In Earth as 'tis in Heaven.*

Then for our souls, O Lord, we also pray,
Thou wouldst be pleased to.....*Give us this day*

The food of life, wherewith our souls are fed,
Sufficient raiment and.....*Our daily Bread.*

With every needful thing do thou relieve us,
And, of thy mercy, pity.....*And forgive us*

All our misdeeds for Him whom thou didst please
To make an offering for.....*Our Trespasses,*

And for as much, O Lord, as we believe
That thou wilt pardon us.....*As we forgive,*
Let that love teach, wherewith thou dost acquaint us,
To pardon all .....*Those who trespass against us;*
And though, sometimes, thou find'st we have forgot
This love for thee, yet help.....*And lead us not*
Through soul or body's want to desperation,
Nor let earth's gain drive us.....*Into temptation.*
Let not the soul of any true believer
Fail in the time of trial.....*But deliver,*
Yea, save them from the malice of the devil,
And both in life and death keep.....*Us from Evil;*
Thus pray we, Lord, for that of thee, from whom
This may be had.....*For thine is the Kingdom,*
This world is of thy work, its wondrous story
To thee belongs.....*The Power and the Glory,*
And all thy wondrous works have ended never,
But will remain forever and.....*Forever:*
Thus we poor creatures would confess again,
And thus would say eternally.....*Amen.*

HIGH-PRESSURE GARDENING

THE DASHEEN IN CUBA, ETC., FROM ANOTHER "LONG-TIME FRIEND."

Friend Root:—I will now explain what I meant when I said that the dasheen craze got me for about $40. In the first place I will state that my folks are great on Irish potatoes, and say they cannot live without them; and as they are sometimes hard to get, and poor at that here, I have tried to replace them with any thing and every thing I ever heard of that would grow here. Every thing has failed so far; so when you got to praising the dasheen ("sky high") I thought they would do. To try them I sent $2 to the Brooksville Development Co., and told them to send me what that money would cover, postage paid by registered mail, as I wanted to try them. In due time I received a letter from them saying that they had sent me a bushel by *express* for the $2.00. This was the beginning of June. My son was up north at the time, and I was sick, so I could not go to the station myself; so after allowing a reasonable time I sent a man after them. For some reason they were nearly three weeks on the way, and that man had to make *seven trips* before he finally got them. He charged $2.00 a trip. That made $16; the express charges were about $4.00. This brought them up to $20, when I finally received them. And what did I get? Just 18 lbs. of dried-up little tubers the size of marbles. There were about 460 tubers in the 18 lbs., so you can judge for yourself what size they were.

I could not believe that any experiment station would send out such stuff. I thought that perhaps some one had changed them, so I wrote to the Brooksville Development Co., sending them a sample, and asked them if that was what they had sent, and also asked them to write me as to how many pounds they had delivered to the express company, etc. They merely made no reply at all.

Well, I threw away the larger part of them, and planted the best about the last of June, not expecting they would do any thing; but in November I dug quite a lot of nice tubers about the size of a hen's egg. The next season I planted these; or, rather, I planted them the last of January, and in July and August I had a splendid stand of them. They beat the picture you had in GLEANINGS of your own. Then in September we had a three-weeks' drouth here, and they all died down to the ground. Along in October they sprouted up again, and in November I dug them, and got about 40 bushels. Now comes the "rub." Nothing would eat them. The family said "once a year" was enough if there was nothing else. Neither cat, dog, rats, chickens, nor pigs would eat them, either raw or boiled. I finally disguised them by boiling and mixing them with cornmeal, and fed them to the pigs in that manner, and so got rid of them.

I want you to understand that I am not blaming *you* for any failures I may make in following you. Some things have turned out good with me here, and some have failed. Those chufas you wrote about—heavens! how they bore here! and they were good to eat—a fine nut; but I could eat them faster than I could wash off this Cuba soil from them.

Mulberries have done the best with me. I am getting a fine lot, and the northy berry is the only berry that can hold its own with the grass and weeds in Cuba.

I wanted to try helianti; but you see what Lovett said about it. If it would grow in bushes and be easy to dig I would still try it.

Well, old friend, things have not gone very well with me these last few years ever since the cyclone, and I suppose I am somewhat sour. Cuba is going backward. We don't get the honey crops we used to; and this year we are not getting any thing for our honey on account of the war. When we read of the war there, floods here, earthquakes in Italy, drouth in Cuba in summer, heavy rains in winter, all kinds of crops ruined, it looks as if even God were at war with humanity. The way things go, it makes a fellow feel as though he wanted to run away from himself. I am hoping for better times, however.

Paradero Mangas, Cuba. C. F. HOCHSTEIN.

I believe the above is the first unfavorable report we have had from the dasheen. Let me explain a little. The Development Co. mentioned are in no way connected with the Government Station at Brooksville. The small dasheens are the ones usually sold for seed; and had our good friend H. *planted* the dried-up ones I think every tuber would have made a plant in time. After filling all orders last May I planted the poorest dried-up ones, and nearly all grew. In regard to their edible qualities, Cuba soil, or the kind of soil used, must be at fault. We are now using them at every meal, and our neighbors agree with us. We boil the skins, or peeling, after scraping out the inside (of the baked dasheen) for the ducks and chickens, and they "go for them" more than for any other feed. Helianti is *more* trouble to dig and wash than the chufa. Friend H., could not that bright young lady who managed the turkeys so skillfully make *them* take to dasheens?

A GREEN-CORN "SCRATCHER."

Mr. Root:—I notice that you inquire if any one knows where you can get a corn-scratcher. I do not know about that instrument, but I have for the past 45 years been in the habit of using a sharp peeling-knife, such as Mrs. Root would use for peel-

ing vegetables, and score down the center of each row of corn, and the tender corn will slip out of that tough hull, which, as you say, is very indigestible. In fact, it used to give me a very uncomfortable feeling like a chunk in the stomach until I adopted the method I enclose. You will find the cob simply covered with the hulls when the corn is of proper age for eating.

I very much enjoy reading all articles in the Home Department, and trust you and Mrs. R. may live many years yet in peace.

MRS. MARY O. HIGGINS.

Southern Pines, N. C., Jan. 18.

A GREEN-CORN SCORER.

According to GLEANINGS of December 1 you wish to know where to get those green-corn scorers. They can be had at John Wanamaker's, in Philadelphia. They cost 15 cts. They certainly are a very fine arrangement to score green corn. If the scorer is drawn lengthwise over the ear of corn before eating, when you go to eating the pressure of one's teeth will cause the kernels to come out nicely and leave the hull on the cob, providing the corn is not too old and hard. It is fine. I do not care to eat corn without the scorer.

Doylestown, Pa., Dec. 18. A. C. GROSS.

HEALTH NOTES

SOME MORE GOOD HARD "COMMON SENSE" FROM DR. WILEY.

As you read it, imagine where you hear *my* "amens!"

TWO KINDS OF CODDLING.

Dr. Harvey W. Wiley, pure-food advocate, has a notion or two outside the field of drug poisoning well worth recording. "To cure a cold," he says, "take a bottle of cough medicine, set it on a table in the patient's room, open all the windows, and throw the bottle through one of them."

"Three-quarters of the children who die," he says further, "are killed by love. Love is the greatest assassin of childhood." Coddling he deprecates as a practice hurtful to the development of boys and girls into healthy, useful manhood and womanhood.

The doctor, doubtless, is speaking primarily of foods and the use of drugs and medicines. But the subject goes much further. Coddling does not necessarily involve the use of either.

There is needed on every hand a better appreciation of the value of hard knocks. A child whose pathway is smoothed through early life has missed a valuable source of training; he has been deprived of the privilege of a discipline which, in all probability, his parents had in full measure, though they may have forgotten it.

It is mistaken kindness to play Montessori to every childish complaint. Call it love, if you will; it is not real love, but an erroneous application of gentleness. In all directions are evidences of the need of a sterner discipline—not an unkind, Spartan-like insistence on the forms of obedience, but a paternal and maternal demand that regulations established for the control of us all shall not be broken down by default of effort to see them maintained.

Coddling is at the bottom of school "strikes." A pupil who knows that the discipline of his teachers will be upheld at home is not likely to lead a "strike" nor follow one far. The boy who makes it unpleasant for his teacher seldom is called to account for making it unpleasant for his mother. In the training of childhood to meet the obligations of a life which knows no Montessori systems, the home and the school must stand together or both will fall.

There are two kinds of coddling. To one impure drugs have no relation. Dr. Wiley is right whether he meant one or both of them.—*Cleveland Plain Dealer.*

INTERNAL BATHING, ETC.

Mr. A. I. Root:—I have become somewhat interested in the claims of Dr. Chas. A. Tyrrell, of New York, in regard to internal bathing. I recall that, several years ago, when I read GLEANINGS regularly, you were an enthusiastic advocate of this system of treatment. Do you find it a good system to tie to, or did it develop bad features after longer trial? Perhaps you have answered these questions in GLEANINGS; but not having kept bees in recent years, and having many other interests, I have not followed your writings as I once did.

Philadelphia, Pa., Jan. 2. C. B. THWING.

In my absence Ernest replied as below:

Mr. C. B. Thwing:—My father is in Florida; but I can speak for him on the question you ask—namely, the matter of internal bathing. He does not use it now as much as he formerly did—only in case of an emergency. Both he and myself have found that it is very much better to eat apples or oranges or grapefruit for the evening meal than to depend on the bath to free the colon. I used to depend on it entirely; but my health was not nearly as good as it is now when I depend on nature's way, the eating of acid fruits. Sometimes, when I do not get sufficient flushing of the bowels I eat half a grapefruit or an orange just before going to bed. This will usually produce the desired result without any bad effect—effects such as one gets from the use of a cathartic. During late years A. I. Root has been a great advocate of eating only fruit for the evening meal.

Medina, O., Jan. 11. E. R. ROOT.

I entirely agree with the above, and would add that, years ago, when I tried assisting nature daily in that way, I found my food was not giving me the strength and endurance it should, for the bowels were emptied before nature had finished her work. I have reasons to believe those who at the present time are advertising apparatus for this purpose are not in accord with the advice of our best doctors.

UP-TO-DATE SURGERY; IS IT A BLESSING TO HUMANITY?

As there has been some discussion in regard to the above, in our pages, I have thought best to give the clipping below from such excellent authority as our good and able friend "Ridgway," of the *Sunday School Times:*

YOUR DOCTOR.—*He saved others; himself he can not save* (v. 31). Which was exactly true, even though hate said it. This is the law of life for all good men. As I write a splendid physician of great fame and large practice has just died in Philadelphia. He has saved thousands by his skill, but he wore himself out in the doing of it. He could not save himself. He said to me one day, "I performed nineteen operations last week, most of them great ones. I shall get paid for but two." They

found him dead last week upon his office floor just where he dropped. He died there all alone. I said to him one day, "Doctor, don't you ever get callous and hardened to surgical operations by doing so much of it day after day?" Said he, "Ridgway, when you put your loved one, with all the agony of your anxiety, into my hands for life or death, I have in trust the most precious thing on earth. How could I be a man and not feel—how could I get callous and hardened?" And after a moment's silence he grabbed my arm, and said, "Ridgway, week after week with trusts like that I sweat blood." And last week it killed him. And thus good doctors are continually being killed. Take off your hat in reverence to your doctor. And fall on your knees before your Savior (Rev. 12:11).

Please note from the above that surgeons are not, at least not all of them, "hardened" by their occupation; and their fee to those able to pay may not be so very unreasonable after all.

STILL BRIGHT AND WELL AT THE AGE OF 106.

We clip the following from the Cleveland *Plain Dealer* of Oct. 27:

AKRON, O., Oct. 26.—"Be temperate in all things, but work," is the recipe for longevity given by Ohio's oldest citizen, Mr. George W. Austin, Kent, O., who celebrates his 106th birthday today. Two hundred relatives and friends will assemble at the home of Mrs. W. S. Kent to help him celebrate the event.

Mr. Austin was born in Hartford, Ct., Oct. 26, 1808. When 18 months old he accompanied his parents on an overland trip by ox team to Little Rock, Ark., then a wilderness. In 1813 Mr. Austin returned to Kent and has continued to live there ever since.

In 1830 he was appointed a mail-carrier and made regular trips, on foot, between Ravenna and Canton. Mr. Austin has outlived his wife, two children, and three grandchildren. His two brothers died a number of years ago.

This old man is remarkable in many ways. He has never found it necessary to have the services of a physician. He never drank a drop of liquor nor smoked tobacco in any form. It is to total abstinence and hard work that he attributes his long life.

He takes a daily walk of one-half mile from his home to his favorite barber-shop and reads the daily papers. At present he is interested in the suffragist movement, and expresses the hope that he will live to see the State vote dry.

Note, friends, that this man, so well preserved at this great age, never drank a drop of liquor nor used tobacco. Total abstinence and hard work is the way he expresses it; and I am more and more convinced every day of my life that people die because they sit down and give up. They leave the farm and move to town so as to "take things easy," and just as soon as they begin to take things easy, stop exercising, and keep right on eating three meals a day, down they go. As for me, I hope and expect to "die in the harness," God permitting.

CURED BY A BEESTING, ETC.

I once took a bad cold, and it settled in my right eye. There were two little white pimple-like lumps that came on the eyeball. They were very painful, and felt just as if I had my eye full of cinders. I really thought I had, but my wife and others said they could not see any thing except the little white lumps. The pain was simply about all I could endure, and I am not much of a hand to complain either. I had just about made up my mind to go to town and have a doctor, when I happened to notice a nucleus near the house, and decided to look and see if the young queen had begun laying. Possibly I was not as careful as I should have been; but at any rate a bee stung me in the right temple, and in five minutes my eye was so much better that I hardly noticed it any more, and by evening it was entirely well, and hasn't given me any trouble since.

Uniontown, Ala., Aug. 12. L. A. HARGREAVES.

My good friend, your letter reminds me of something that happened a few weeks ago. When I awoke in the morning one of my eyes felt bad; but the more I washed it the worse it became. Finally the pain became, as you describe it, so great that I sent for a doctor. I told him I had gotten something in my eye. A careful search, however, revealed nothing or next to nothing; and after removing every thing he could discover he applied a drop or two of a solution of boracic acid, and the pain and irritation disappeared as if by magic. In fact, I uttered an exclamation of joy and relief to have it disappear so suddenly; and others have informed me that this is the remedy in common use, and affords relief from almost any kind of irritation or similar troubles of the eye. We now keep some of the solution in the house, but my eye has never troubled me since in the same way. Is it not possible that the beesting produced a flow of tears and lubricated the irritating eruption?

KEEPING THE HANDS CLEAN.

When I was in the watch-repairing business years ago it was absolutely necessary for me to keep my hands dry and clean. In handling the delicate machinery of a watch, soiled or perspiring hands could never be tolerated an instant. On this account I always had a wash-basin, with soap and towel, near my work. And this fashion has followed me more or less all my life. Down in Florida I have soap, basin, and towel outdoors near the garden. It saves my climbing the steps to get into the house, saves me from using the towels indoors when I am in a hurry, etc. As Mrs. Root does all the washing, I try to avoid using the regular towel when I am in too much of a hurry to wash my hands *thoroughly*. The white cotton cloth used for sacks for middlings makes a very good towel to be used on such occasions. It is also handy to have around automobiles when you want to wipe your fingers. Down in Florida there is no market for paper-rags, as paper-mills are so remote; and I believe there is no market for grain-sacks or sacks of any kind. They are just

dumped around and allowed to rot after the grain is emptied out. If they were saved up till we get a carload it would pay to ship them; but nobody, at least around Bradentown, has as yet undertaken the job.

Well, now, to get back to this matter of keeping the hands clean. Huber has just made an invention. Those of you who have worked with automobiles know what a task it is to get the black grease off the hands when you once get them badly soiled. Why, it often takes more time to clean up than to do the work. To help matters, I have kept a little dish of sand close by the wash-basin. The sand helps very much to get off the sticky grease. Well, Huber's invention is this: *Before* you go to work at the automobile, or any other greasy machinery, coat your hands with soap and let it dry on. This will not hinder you at all in your work; and when you come to wash, the grease from the dirty ironwork comes off in an instant because the soap prevents it from getting down into the pores of the skin. Mrs. Root adds a supplement to Huber's invention. She said she read in some woman's magazine that you should "claw" into a bar of yellow soap so as to fill the finger-nails before you attempt dirty work. When you are through, a nail-brush will wash off the soap very readily without a great lot of scouring.

Now, clean hands are not only an indication of respectability, but it lets people know you are careful about making your wife trouble by going into the house and handling things with dirty fingers. I might say something about dirty feet as well, but I have not time just now. Let us all strive, good friends, to have not only clean hands and clean feet, but a clean heart, void of offense toward God and our fellow-man, and the good wife, last of all, but by no *manner of means* least.

TEMPERANCE

"PHILADELPHIA DRY IN 1916."

Our good friend B. B. Jones (Lake Roland, Md.), keeps us posted about Billy Sunday by sending us clippings from the daily Baltimore *Sun*. Here is one of them:

PHILADELPHIA, Jan. 31.—Making a solemn vow that, when they got the chance to vote Philadelphia "dry," they would do it, 40,000 Philadelphia voters cheered Billy Sunday to-day when he preached his famous "booze" sermon.

They leaped to their feet as they registered that vow, and then swarmed down the sawdust aisles, struggling to get to the evangelist. Failing that, they climbed on the pine benches, and, hurling their hats in the air, yelled the prediction: "Philadelphia dry in 1916."

That was the climax of the most sensational sermon Sunday has preached here. He preached it twice, and 1266 persons "hit the trail" at the two services.

The evangelist scored the farmer who sold his grain to the distillery; scored the man on his way "to church and heaven" who was really going "straight to hell" because he voted for rum; scored those responsible, through liquor, for the asylums, almshouses, penitentiaries, electric chairs, and the 865,000 "whisky-orphaned" children in America.

The words of Lincoln, McKinley, and Roosevelt against liquor were quoted by the evangelist, and deafening cheers rang in the low-roofed building when Sunday grabbed an American flag, crying: "Every plot to overthrow the United States and trample under foot this glorious flag wriggled and crawled out of the pit of hell. That hell was a liquor-hell."

Sunday told of the farmer getting 50 cents for a bushel of corn from which the brewer made 36 pints. With three of those pints Sunday declared eight lives were wrecked, and three persons were sent to the gallows. He stated what the Federal pure-food laws required beer to be made of, and then gave his version of what it really was made of, and he hit at the administration that "kicked out old Doc Wiley, the best friend the American people ever had."

I am beginning to have faith that Mr. Sunday will (God sustaining and sparing him) not only make the *whole United States dry*, but that he alone will ultimately end the war in Europe through Christ Jesus, whose representative and "embassador" he is—"embassador to be, from realms beyond the sea."

QUESTIONS IN JUDGMENT.

John O. Keeler was hanged the other day at Clearfield, Ind., because in a drunken frenzy he murdered Joseph Roessner, the Clearfield brewer.

What Keeler has told his God is not known; but this is what he wrote to Rev. Dr. Reeve a few days before he was strangled to death by the law:

I can say with a clear mind that I was never sober from the time I went to work at the Clearfield brewery. I was full of booze all the time, counting Sunday with it, because I had a keg at home on Sunday, and I did not have to get drunk to do what I did. I am here for the murder of Joseph Roessner, but I don't know if I killed him. I can't say. If I could I should be glad to tell the public so, because he made the booze and he gave it to me free of charge, that made me a drunkard and a murderer. It was Mr. Roessner's own product that murdered him and made me a murderer. It was his beer that put my family in distress and lots of other families besides mine.

I began my downward career at a saloon bar and wound up at the Clearfield brewery. I will appear at another bar, the judgment bar of God, and there your Honorable Judge Smith and some of his lawyers, and Joseph Roessner, and a good many more, will appear with me and will be rightly judged.—*Westerville New Republic.*

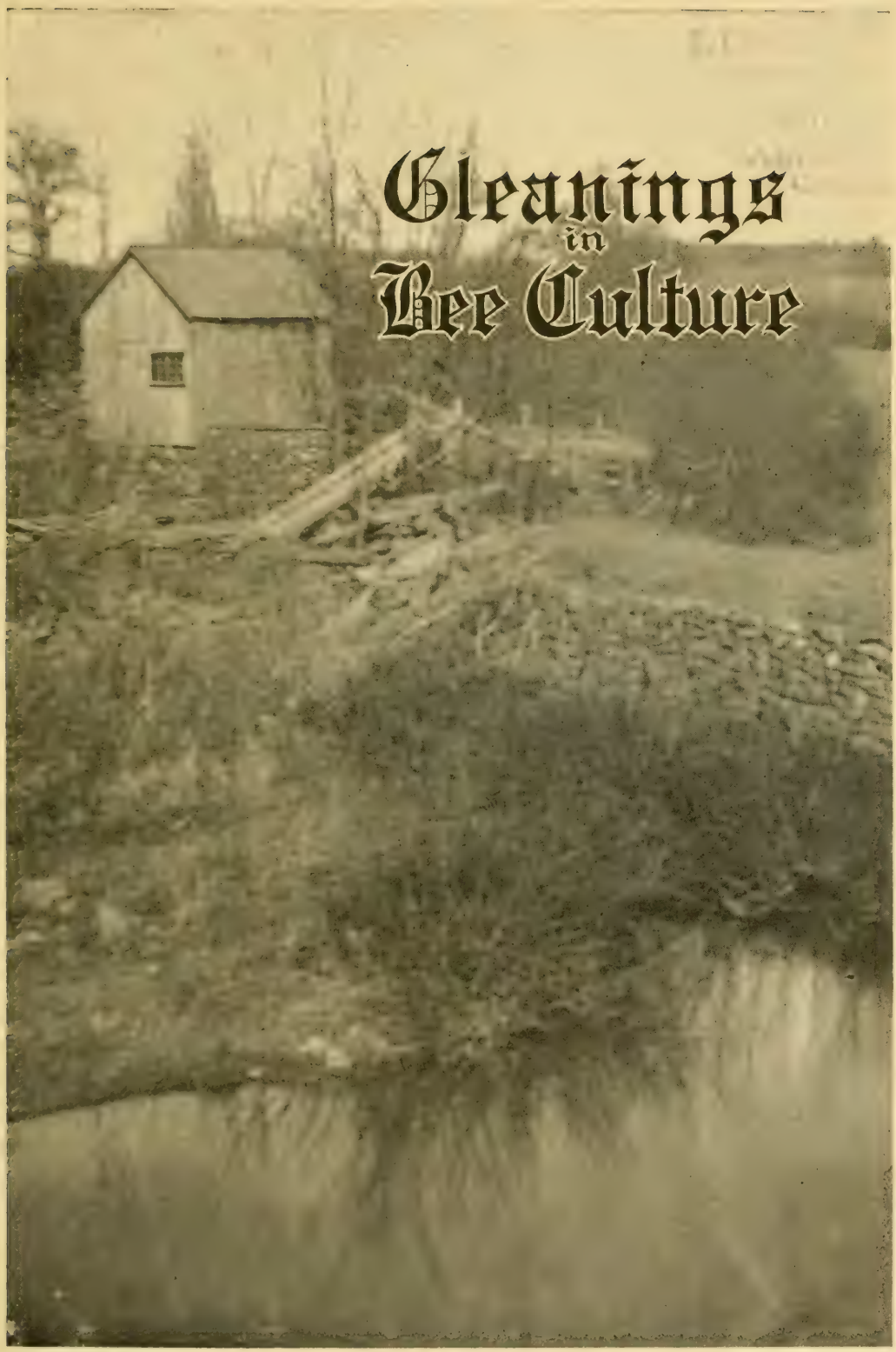
"HOLDING THE FORT."

Mr. Root:—You will be glad to know that Van Wert has voted dry by 300 majority. We hope that our town will follow the lead of the county seat.

Convoy, O., Jan. 9. J. F. ALEXANDER.

Vol. XLIII APRIL 1, 1915 No. 7

Gleanings in Bee Culture



Ruins of the Old Mill and Dam where Moses Quinby made his Beehives

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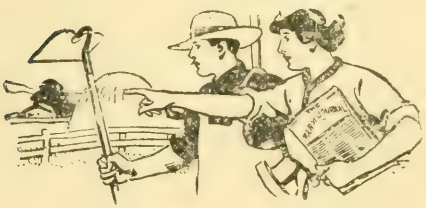
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EDITORIALS

WE have the largest and most complete exhibit we ever installed, at the Panama-California exposition, San Diego. Look for the big white front in the "Varied Industries" building. We have another (but smaller) exhibit at the San Francisco exposition in connection with the State Beekeepers' Association. Call and make yourself known.

Foul-brood Bill Introduced to Washington Legislature

THE beekeepers of the state of Washington have been successful in introducing to the senate a new foul-brood bill which is expected to pass both houses. In some respects the bill is not what was wanted, but it will at least serve to pave the way for something better two years hence.

The Foul-brood Situation in San Jose

WE visited San Jose on Tuesday, March 9, and are happy to announce that the foul-brood situation there is much better. The inspector, Mr. L. R. Cody, reports that conditions are improving materially, and he has already given a clean bill of health to a number of beekeepers. So far as we can ascertain, there have been no bee diseases except in the immediate vicinity of San Jose. All the beekeepers there are working hard to eliminate it, and before this reaches our readers there will probably not be a cell of foul brood in the vicinity.

The Pennsylvania $50,000 Bill

PENNSYLVANIA beekeepers will be interested in the following just received from Prof. H. A. Surface:

A bill providing an appropriation of $50,000, "to be used exclusively in eradicating, controlling, and preventing diseases of bees, and in enforcing the laws of Pennsylvania relative thereto," has been introduced as House Bill No. 733 by Mr. Jack, of Armstrong County, and has been referred to the Committee on Appropriations; and in the Senate as Senate Bill No. 281. The members of this committee are as follows:

Woodward, Allegheny Co.; Cox, Philadelphia Co.; Curry, Philadelphia Co.; Gans, Philadelphia Co.; Steedle, Allegheny Co.; Kaiser, Allegheny Co.; Aron, Philadelphia Co.; Eby, Perry Co.; Walton, Lawrence Co.; Wood, Indiana Co.; Neville, Montgomery Co.; Sinclair, Fayette Co.; Scott, Center Co.; Rininger, Blair Co.; Thomas, Luzerne Co.; Greenwood, Chester Co.; Jones, E. E., Susquehanna Co.; Lindsey, Warren Co.; Flynn, Elk Co.; Body, Berks Co.; Murphy, Luzerne Co.; Ehrhardt, Lackawanna Co.; Hess, Lancaster Co.; Geary, Allegheny Co.; Conner, Philadelphia Co.; Ramsey, Delaware Co.; Myers, Washington Co.; Walter, Franklin Co.; Goldsmith, Westmoreland Co.; McCaig, Allegheny Co.; Schaeffer, Schuylkill Co.; McClintock, Philadelphia Co.; Fruit, Mercer Co.; Neider, Philadelphia Co.; Bovee, Erie Co.; Shaaber, Berks Co.; Spangler, York Co.; Williams, Tioga Co.; Perry, Philadelphia Co.; Shaffer, Columbia Co.; Kitts, Erie Co.

As President of your State Beekeepers' Association, and member of the Legislative Committee, I recommend you to do all that is possible to bring influence to bear on these gentlemen for favorable action on this important measure.

Beekeepers of the Southwest, Take Notice

THE Southern Conference for Education and Industry will hold its annual meeting at Chattanooga, Tennessee, on April 27-30. In connection with this conference there will be a number of smaller conferences on various subjects of interest in the South. One of these will be on beekeeping. The general meetings are held in the morning and evening, and the smaller conferences in the afternoons.

In connection with the beekeeping meetings, it is proposed to devote the first afternoon to a discussion with farm demonstrators and teachers. The second and third afternoons (April 28-29) will be devoted to a beekeepers' conference to which all beekeepers are cordially invited. A number of prominent southern beekeepers will be

present, and these meetings promise to be most helpful. As soon as a definite program can be announced a copy will be sent. In the mornings previous to the meetings of the general conference there will be a two-hour question-box meeting.

It is hoped that some instructive exhibits can be arranged as well as some practical demonstrations. A room has been assigned to the beekeepers' conference for this purpose. Program in next issue.

The Foul-brood Bill in Idaho Vetoed by Governor Alexander

House Bill No. 54, by York, was vetoed by Governor Alexander, the reform Governor of Idaho. Mr. Alexander, in his pre-campaign speeches, promised the tax-payers that, if elected, he would save them one million dollars in taxes. The foul-brood bill would require $5000 to put it into execution. Near the close of the legislature the Governor gave notice that he would veto a large number of bills calling for various appropriations. While he tentatively had promised to support the York bill, he gave as a reason for vetoing it that it provided for an unlimited number of inspectors at $5 per day, such inspectors to be named by the State Beekeepers' Association. He forgot, however, that the appropriation of $5000 would have held the limit down to a reasonable number.

We give the Governor credit for standing back of and putting through the most magnificent temperance law for statewide prohibition that was ever enacted by any legislature. G. W. York, formerly editor of the *American Bee Journal,* and a member of the House, was a very important figure in the enactment of this legislation. We will give further particulars later through these columns.

The Bees at the Dismal Swamp

When Mr. Rea was at the Dismal Swamp during the latter part of February, farmers were planting potatoes. The bees were flying every day, and bringing in pollen and even nectar. Some of the queens had six or seven combs of brood. On his return, Mr. Pritchard started for the swamp to begin the active work of building up the colonies, etc. However, to our great surprise, the weather suddenly turned cold, and on March 18 Mr. Pritchard wrote that there had been only half a day when it was warm enough to work with the bees. There had been four inches of snow and much freezing weather. The residents say it is the coldest spring in 30 years. It has been so cold part of the time that the men have been unable to nail up hives in the barn. The United States weather maps show that unusual cold weather has extended well down into the extreme southern states. Even in northern Florida temperatures around 40 degrees have been common. C. H. Clute, of Palmetto, Florida, is our authority for the statement that the citrus bloom in the state will be less than half what is considered normal, and that bees have consumed about double the usual amount of stores. Mr. Clute says that February and March were the wettest and coldest of any year on record.

We are afraid that all that brood so well under way in February will be lost. In fact, when Mr. Pritchard wrote, March 18, he said the colonies were decreasing rather than increasing in strength.

Iowa Beekeepers, Write your Senators and Representatives

The following letter explains itself. It arrived just too late for insertion in our March 15th issue.

There is now in the Agricultural Committee in the Senate a bill establishing a Department of Bee Culture at the Iowa State College, at Ames, to teach beekeeping, to do experimental work, to publish bulletins, etc. This bill, thanks to our tried and true friend Henry Brady, of Dallas Co., passed the House some time ago.

Three more bills of interest to beekeepers have just been introduced in the House. One aims to amend the present inspection law, which states that the inspector, upon written notice from three beekeepers in a given locality, must inspect bees in that territory, and also requires him to return later and make a reinspection of all infected colonies. The amendment would require the inspector to examine bees in any locality upon notice from any beekeeper in that territory, and would leave the reinspection optional with the inspector. If he feels that the owner of the diseased colonies is competent to, and will, give them proper treatment, he will not be required to return to the apiary, but can spend that time inspecting other bees.

Another bill would establish the office of county inspector of bees to be chosen from among the resident beekeepers upon petition to the board of supervisors by ten or more resident beekeepers, or upon recommendation of the State Inspector. This county inspector would receive a salary of $3.00 per day for time spent inspecting bees, the salary for any one season not to exceed $75.00, and would be directly accountable to the State Inspector.

The third bill, the one which will probably meet with the greatest opposition, would prohibit the spraying of fruit-trees while in full bloom. The state of Washington compels spraying at a certain time; and if a fruit-grower fails to spray at that time men are sent around to do it for him, and he must pay a heavy penalty. The law in Washington prohibiting spraying fruit when in full bloom is just as stringent. Fruit-men are of one accord in condemning spraying when in bloom; but there is some difficulty in getting some to spray under any circumstances, and it is the sense of some that such a law would deter a few from spraying at all.

Considerable injury has been done to bees in various parts of the state by injudicious spraying; and those who have suffered loss therefrom should make it a special point to write their senator and representative, stating the facts in the case, and also write Wesley Green, State House, Des Moines, naming the parties who do such spraying.

Now, in order to get these bills passed, every beekeeper should address a letter to his senator and his representatives, asking their support of the above bills, and one to the Agricultural Committee members, asking them to report favorably on the first-mentioned bill. The members of the committee are Senator Allen, Arney, Hammar, Fleck, Foskett, Dirr, Eversmeyer, Perkins, Fellows, Farr, Lindley, Balkema, Nye, Savage, Grant, White of Iowa Co., and White of Benton Co., and Senator Doran, who is chairman of the committee.

Do not put this off until another day when it is a little more convenient. We must not let these bills die in committee. In order to get them through, every beekeeper should act immediately, and should not stop short of six letters. They need not be long, but tell them what you want, and do it at once.

Des Moines, Ia. F. C. SCRANTON.

How our Bees have Wintered

To date very few days have been warm enough for bees to fly. We have observed for nearly two weeks that the bees in the warehouse cellar showed signs of dysentery—at times getting quite uneasy. Yesterday morning, March 19, the sun came out bright. We hustled the bees out with the auto truck and team to our basswood yard, where most of them belong. They flew, and cleaned up in fine shape. Although but one colony had died outright, many were needing a flight badly, and were evidently put out just in time. A few days longer in the cellar would have meant disaster. The condition was due, undoubtedly, to aster-honey stores. We are fearful that these colonies will dwindle badly unless the weather from now on is very favorable.

Our queen-breeder, Mr. Pritchard, had some colonies in the same cellar that had been fed sugar syrup last fall, and these showed up in much better shape.

Bees in the machine-shop cellar are quiet and contented since the cleansing flight which they had on February 20.

Spring is advancing slowly—in fact, so far there has not been a single day fit to open hives and examine the bees excepting to lift covers and look for stores and size of cluster. Colonies in the big winter cases and Buckeye chaff hives are just about as previously reported, with brood-rearing progressing slowly. In the end this may be all for the best, as slow gains usually mean sure gains in brood-rearing. We are always apprehensive of a spring that gives too warm weather in March, and then turns cold later. Heavy losses of brood are almost sure to result.

As we have often pointed out, there are many differences in conditions only a few miles apart. In this connection the following letter from A. C. Ames will explain itself. Mr. Ames' bees are not much over fifteen miles in a direct line from the apiary that we are wintering in the large quadruple cases.

Dear Mr. Root:—I have just read your editorial in the March 1st issue in regard to the large cases. It seems very strange to me that you did not find brood. I examined the brood-nest the same day you did, and found brood in all stages from eggs to young bees. I examined six colonies, and found only one colony that did not have sealed brood, and in three colonies I found young bees. I have never had bees winter in a more perfect condition. Of course we have March to deal with, and sometimes it is the hardest month; but as we have had several good fly days I do not fear the result.

It is quite cold to-day (March 9); but the bees are carrying water. When we consider these good results we must also take into consideration that this has been one of the best winters we have had for years—good steady winter weather without much if any wind. Wind is the worst thing we have to contend with in winter.

I believe bees will winter well in all the northern states.

Peninsula, Ohio, March 9. A. C. AMES.

An Interview with Dr. A. J. Cook, of California, on the Spraying of Cover Crops

WE had an interesting interview with Dr. A. J. Cook, Horticultural Commissioner of California, who is located at Sacramento. In referring to the sprays that were falling upon the cover crops of western Colorado, and which, it was believed, were killing bees in a wholesale way, he gave it as his opinion that these spraying liquids would kill the bees in large numbers. There had been several experiences of that kind in California. He was recommending the vetches, which do not come into bloom when the sprays are applied. In fact, he doubted if it were necessary for the Colorado fruit-growers to spray as often as they were doing. If the work were *properly* done it would hardly be necessary, he thought, to spray when the cover crops of clover were in bloom.

He admitted that the very dry climate of Colorado might call for more sprayings than were found necessary in California, but he thought if the fruitmen and beemen would get together they could easily arrange the matter so there would be no loss to any one.

Cover crops are being used throughout the western orchards to a very great extent, both to supply nitrogen to the soil and to keep it from drying out too quickly. When

plowed under they furnish a fine humus, so necessary to the proper fruitage of the trees.

Dr. Cook went on to explain that the vetches and annual yellow sweet clover, known as *Melilotus indica,* are being used almost exclusively in California for the purpose. In this connection it is proper to remember that *Melilotus indica* is also known as the annual yellow sweet clover. This is also a honey-plant, but not quite the equal of the *Melilotus officinalis,* nor yet quite the equal of the white sweet clover, *Melilotus alba;* but the fact that the annual yellow sweet clover, *Melilotus indica,* is one of the best cover crops that can be used by the orchardist, suggests that perhaps the Colorado fruit-growers on the western slope could use it; if not that, they could use the vetches, both of them supplying nitrogen to the soil, and at the same time make an excellent humus. The beekeepers of Colorado should suggest that their friends the fruit-growers try something else as a cover crop that will not be prejudicial to the interest of the beekeeper.

Beekeeping in the Great West

THERE are certainly some very fine bee locations in the great West. Most of them have already been taken up, and many of them are overstocked. There are localities where new irrigation schemes are under way, and alfalfa is just being grown. These will be found in parts of Montana, Wyoming, and northern Idaho. Most of the good bee territory in southern Idaho has already been taken, much of which is overstocked. About all one can do in established territory is to buy out some good beekeeper. The same rule practically holds in Colorado, Utah, Nevada, and southern California. There is some new territory not taken in the northern part of the state. If any one from the East desires to go into beekeeping he should buy a ticket, and tour the country thoroughly before he decides to locate. In most cases he will have to buy out some one else already on the ground, and probably this can be done.

It certainly does not pay a tenderfoot to go out into the western country and attempt to squat his bees down near some resident beekeeper who thoroughly knows the locality. The newcomer is generally frozen out if it is a freeze-out game.

This is not written to discourage the emigration of eastern people; but it is only fair that they know what they will run up against in old established territory if they attempt to locate without buying out a bee range. There seems to be a sort of unwritten law among the western producers to stand together and protect each other, and we cannot blame them.

Our Cover Picture

IN this special Quinby number we are much pleased to be able to present so interesting an array of pictures closely associated with Moses Quinby. His son-in-law, Lyman C. Root, whose article appears on another page, made a trip, at considerable inconvenience to himself, to the old home in Greene County, where Mr. Quinby wrote his first book, and where he made most of the investigations which have so greatly influenced the whole beekeeping world. We are especially glad that he secured a photograph of the old mill where Mr. Quinby earned the support of his family in his early years, and where he made his hives. This picture is shown on our cover. The building shown is not the old mill. Some of the old timbers of the latter are to be seen in front of the building, by the rocks that were part of the old dam.

On another page is shown a copy of the old engraving, taken from his book published in 1865, showing queen, drone, and workers, also worker and drone cells. Even with the advanced knowledge gained in the fifty years that have elapsed, this can be considered a most faithful and perfect drawing. In this connection it is interesting to note that Mr. Quinby's daughter made the sketch with a pencil. As Mr. L. C. Root says, it certainly illustrates Mr. Quinby's accuracy in whatever he undertook.

Just as we go to press we received the following from L. C. Root, which is so interesting we give it a place here. The photograph of the extractor will appear in our next issue.

I have secured a picture of the first metal-can extractor that Mr. Quinby made after the one I described.

I am looking forward for the Quinby number of GLEANINGS with much interest. Was he not first to keep bees in large numbers in out-apiaries? first to ship honey in large quantities to any market? first to place beekeeping on a commercial basis with other branches of agriculture? first to use the honey-extractor to produce honey by the ton? first to invent a self-spacing frame? first to discover that when bees are wintering well, they discharge their feces in the dry state?

I have never appreciated father Quinby's life-work as I have since I have been visiting the different places where he spent his life. Everywhere I have found evidences of his unselfish life and largeness of purpose. I am just beginning to appreciate some of the embarrassments he had to meet through lack of appreciation.

You will see why the coming number will be of deep interest to me.

Stamford, Ct., March 8. L. C. ROOT.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



W. J. WOOLLEY, p. 233, reports an average of 30 lbs. per colony. Looks a little like small potatoes. But when you figure it at 18 cents (9d) per pound, or $5.40 per colony, some of us might be glad to swap places.

I'M PROUD of my native state, good old Pennsylvania, to think she has a governor who would propose $50,000 for the benefit of beekepers, p. 216. But then it's just like Governor Brumbaugh. Do you know that he's one of the leading Sunday-school men of the land?

OUGHT not that statement, p. 240, that the building of queen-cells is inseparably connected with swarming, be cut just about in two? Remember that under natural conditions *every* queen, when she closes her career, has cells built for a successor, with no thought of swarming.

G. M. DOOLITTLE, p. 224, my record-book does get daubed with honey and glue, but with a new book each year the trouble is not serious. I don't understand the wind blowing your book open at the wrong place in spite of best endeavors. No trouble worth mentioning here. Locality?

E. S. MILES has covered the ground as to taking bees out of cellar exceptionally well, p. 232. One thing just a little different here. With a two-inch space under bottom-bars, we can quickly clean out dead bees after a hive is placed on its stand, and close the entrance before bees wake up to fly out.

YOUNG fellow, read carefully all that's said, pages 133 and 135, about just exactly how you're to make candy to feed your bees, and then make up your mind decidedly that only in extremities will you ever put any of it in practice, but plan ahead to have extra frames of sealed honey to meet all emergencies. Take it from me, you'll never be sorry.

A GOOD deal is told about sugar, p. 214, and what of it? Well, several things, and chiefly that 86.85 pounds average annual consumption. Do you realize what that means? It means that inverting so large an amount as that is too heavy a strain on the digestive organs, hence a weaker nation. It means something worse than that. For that *average* means that, while some use much less, others may use double that amount, hence a lot of people are practically killed by sugar-eating. Uncle Sam might do a good deal worse than to spend a few thousands in a campaign to educate the people so that at least half the sugar should be replaced by honey. But in that case could the demand be supplied?

UNCLE JOE BLUNK, referring to my wintering, says I can keep the door of my bee-cellar closed all the time if I connect a pipe in the bee-cellar with the furnace chimney, as "enough fresh air will seep in through the walls of the cellar to feed the place." I should have explained that I have a stove-pipe-hole entering a chimney in the bee-cellar. But no "seep" business is good enough for my bees. They like the air to come in a flood.

"BESIDES there are many basswoods and linden trees," p. 185—which reminds me. Years ago a man in Marengo had in his yard several basswoods perhaps 40 years old. Happening in that part of town one day I noticed that they were taken down, and that some little trees four or five feet high had been planted. With some degree of pride he said, "I had those common basswoods taken out, and got from the nursery some choice shade-trees—lindens."

SURPRISING is that statement, p. 242, that by using the Alexander plan, "putting the queenless colony right on top with nothing but the honey-board between . . . . . the chances are that the swarming tendency would very rapidly develop into a mania." Surely so good a beekeeper as Mr. Alexander would have discovered if that were so. Moreover, I have practiced it hundreds of times where cells had been started, and have always counted it a cure for the swarming mania. What can make the difference?

POUNDING home the truth that bees are necessary for pollination, and that spraying in bloom hurts the fruit, will do some good; but no matter how intelligent a fruit-grower is, he will spray before bloom is gone if he is selfish enough unless the law prevents him. He says, "I know all about what you say; but I can't get through spraying in time unless I begin before all have gone out of bloom. Even if I could I don't want to. If I wait till all bloom is over, there is a little danger that some of the oldest fruit will be wormy. If I spray when two-thirds of the bloom has fallen, and kill all yet in bloom, there will still be left more fruit than the trees can mature, and I'll have no wormy fruit. Me for the earlier spraying." Now what reply have you?

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



From numerous reports in late issues of the *Journal,* as well as in private letters to hand, I might be doing a bit of worrying about that yard up north which I have not seen since early in November, and which is wintering mainly on aster stores. Many are reporting bad results in localities further south, where the bees have had a cleansing flight. There are 250 colonies in the yard in question; and as there is no practical beekeeper right near the bees to report conditions to me, I have not the slightest idea how they are. I had purposed to go up before this; but as the distance is nearly 100 miles from my home, and nothing except gratifying my curiosity would be accomplished by the trip at present, I have delayed going. I expect to go there when the first warm spell comes along, and will then report just how things are for the benefit of the many who have made inquiries.

* * *

It is not often that the editor gives me such an opening as that on page 176, March 1, when he tells of so many colonies being dead. He says, "We found the clusters actually starved to death with plenty of stores within two combs distance, either on one or both sides, because the weather remained cold so continuously." It is easy to explain the cause of this loss. There was too much "winter nest." But, joking aside, this is an illustration to prove the necessity of having combs well filled to be sure of successful wintering outdoors in a climate as cold as here in Ontario—much colder, by the way, than it is in Ohio. It is because we have learned this fact by dear experience that I would not be afraid to wager a good deal that, among hundreds of colonies being wintered outside by Sibbald and others, none will be found in the condition so well described by the editor. Bees seemingly can move upward on stores, no matter how cold the weather is; but with steady cold weather they cannot break cluster and move sidewise.

* * *

April is the month in our latitude when beginners often do harm to colonies by handling them too often, many times in unseasonable weather. As a matter of fact, beginners are not the only ones who make these mistakes. Generally speaking, if one has the bees well protected, knows they have sufficient stores, etc., a let-alone policy is the best by all means. Possibly there may be a very few exceptions, but they simply prove the rule. Hundreds of good queens are lost every spring by the colonies being manipulated too early or at least too often. At this time of the year, for some reason, the bees are unduly solicitous as to the queen's safety, and often on the slightest disturbance they will ball her—something that spells disaster for the colony at this early date. I know it is very tempting on a nice warm day in early spring to have a look to see how that favorite queen is doing —to see how many combs of brood the colony has, and to see the fresh pollen; but better curb your curiosity till a later date than to find, a few days later, when again examining the brood-nest, that some stubby queen-cells are started, telling you that the queen you were anxious about has disappeared.

* * *

On page 180, March 1, P. C. Chadwick says the writer of these notes "complains" because the bees have had no flight since the last of October. I hasten to say that is not quite correct—at least I hardly meant it that way, even if what I said does sound somewhat like a complaint. It is my honest opinion that the man who is keeping bees for a living will either develop the virtue of patience or else become a confirmed grouch; and while I am not any too patient at best, still I hope that I do not qualify under the latter heading. I try not to complain about things I am not responsible for or have no control over—the weather comes under this list; and if I wish to complain, there is always enough material to draw from in connection with things I am responsible for.

P. C. Chadwick's bees may have too many flights to suit him during the winter season —if we can term any part of the year in California under that heading; but when I say that at this date—March 8—our bees have not yet had a flight, I venture to say that he would sooner choose conditions as they are with him than to change with us. However, we are doing no worrying; and if the bees have had no flight, we have had a delightful winter, and the chances are that we shall have enough bees left for "seed" anyway. A few weeks at the most, and we shall know the worst or the best as the case may be.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



CAUSE OF AMERICAN FOUL BROOD.

Mr. J. D. Bixby has a rather amusing and somewhat interesting paragraph in the February *Western Honey Bee*. He says he does not know what are the causes of American foul brood. Then he proceeds to guess or presume that there are two kinds of cases of American foul brood —contagious cases and sporadic cases. He says (or I guess he does) that rotting drone brood from a healthy hive will, if the bees work over the stuff and take up the "foul juices," produce "sporadically" American foul brood. You are to understand that this is not genuine contagious or infectious American foul brood, but just sporadic American foul brood which means that it may be carried to other hives or it may not. I'll bet the price of half a round-trip ticket from Boulder to Covina, Calif., that Mr. Bixby cannot produce a case of American foul brood by using any such method. I do not care whether it is "sporadic" or "contagious" American foul brood.

* * *

The bill before the Colorado legislature, Senate Bill No. 77, introduced by Senator Schermerhorn, is in the hands of the Finance Committee, of which Senator Hasty is chairman. This bill is the one designed to control the cutting of cover crops before orchards are sprayed. There is some opposition to this bill among some of the fruit-growers, but it is probable that the bill can be passed if the fruit-growers understand it. It is not designed to force the fruit-growers to practice clean cultivation, as has been claimed. The object of the bill is to prevent the spraying of orchards when the cover crops growing therein are in bloom. Cutting the blooming clover, or turning it under just before doing the spraying, will solve the difficulty, and this phase of the situation is the only one touched.

If the beekeepers in the fruit districts are not given protection, such as is designed in this bill, there is no use in trying to carry on beekeeping for honey production in the same district with fruit-growing.

If all Colorado beekeepers will write their representatives in the legislature at once, the probabilities are that the bill may be passed. Write at once, and keep on writing until you get a definite pledge from your representatives that they will support this bill. If you can see your representatives personally, so much the better. Telegrams also often have a very beneficial effect. We have used them to good effect in the past, and they will be used in this campaign.

* * *

Frank Hill, in March 6th issue of *The Country Gentleman*, has a very interesting article on "A One-horse Farm." He is apparently located near Kansas City, and has a 5½-acre place from which his income is around $1400 a year. His bees bring him in $500 a year on the average, which is the largest single item of his diversified operations. Strawberries come next on the list. He says the bees are the most variable in regard to annual production. One hundred and twenty-five colonies are kept. His "farm" has no chickens; and his chicken story, comparing it with bees, is highly interesting and humorously written. Here it is:

When I bought my farm I did not intend to raise chickens. I had been through the chicken-mill. Upstairs somewhere there is a big box that contains my chicken things. There are a good many dozen ribbons—lots of them blue; several diplomas and five silver cups, all won at the state poultry shows of Kansas, Missouri, and Nebraska; also in the box are caponizers, leg-bands, lice-powder, many dollars' worth of chicken medicine, and enough literature to instruct anybody how to get rich in the chicken business.

I had the chickens when I was in business. I raised and showed them for fun—they paid me in fun. The few hundred dollars I got in spring and summer for hatching eggs, and in fall and winter for exhibition and breeding birds, just about paid expenses.

It pays the general farmer to raise chickens. He has grain, and keeps stock. On such a place the fowls have a wide range, and the waste grain goes a long way toward keeping them, but nothing of the kind on a small place. Try it. Buy your feed at market prices. Sell your eggs and meat on the market. Keep books. See how you come out. I doubt if there will be enough left to buy the next new brooder that comes out.

But while I was in the business I had another diversion that stuck, and stuck on its merits—bees. Bees are the most interesting proposition I have ever wrestled with, and for profit they have chickens backed clear off the right of way. They don't need incubators, brooders, chick feed, nor grit. They don't have lice, mites, roup, limber neck, liver trouble, nor cholera. You don't have to get up in the middle of the night to see that a lot of little chicks are not getting chilled, nor chase away some prowling cat or skunk. You don't have to hustle a lot of one-pound birds into their coops before a big rain for fear the lunatics will stand out in the storm and get drowned. Bees know their business, and attend to it. Bees can be kept anywhere in the United States, and almost anywhere they will show a profit if properly managed. A back yard big enough for a coal-box is space enough for two or more colonies of bees. They are kept in garrets and on roofs of buildings in large cities. Almost any spot big enough for the hive will do, and a mighty small place will accommodate a hundred hives.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Mr. Arthur C. Miller gives an interesting account of stopping a bad case of robbing. It is interesting to me because of the fact that no argument can convince me that I would not be getting into a worse muss than ever if I tried the same plan in my apiary.

* * *

I am glad to note that the necessity of producing a clean ripe quality of honey is constantly increasing. The present depressed condition of the market is having a wonderful influence in this respect. The beekeeper has come to the realization that, if he is to sell his product, it must be up to a high standard in color and body. A few with whom I talked at our state convention argued that the producer can still sell a thin honey at a price almost equal to the heavier qualities, and very much more could be produced. This idea should be discouraged —first, for the reason that it is not strictly honest; and, second, because it has a depressing influence on the market. When a consumer buys a poor grade of honey that sours on his hands he is very reluctant about buying more. Then, too, I am of the opinion that thin honey will not pass the inspection of consistency required by the pure-food law. It is greatly to be hoped that it will not, for that would eliminate it from the market quicker than any argument. There are many of our producers who are none too particular about this point in honey production. It should be the object of every producer, however, to put up an article that would give him first thought in the minds of honey-buyers.

In this connection I am going to rehash my views on the necessity of plenty of comb room. There are many who argue that there is a great loss in waiting for honey to ripen. This is quite true when there is a lack of room in which the raw nectar can be stored while the ripening process is in progress. That is why I am always preaching plenty of room. Now, by plenty of room I do not wish to convey the idea that an unreasonable amount of combs should be placed on the hive. In fact, I hold the opinion that no more than two supers above the brood-chamber should be used in producing extracted honey. When tiered up to a greater height there is both time and bee force wasted—time, because of the necessity of the bees having to go so far from the entrance to such a great height; bee force, because, when the product is finished, it will be constantly guarded by bees that might be better employed. The season should be started with a single super. If the season is favorable when sealing is begun, another super of empty combs should be placed under. When sealing begins in the lower the upper will be ready to come off, be extracted, and be replaced under the remaining super. In this way plenty of room can be furnished for the raw nectar while the ripening of the upper super is being completed. That a crowded condition follows the single-super plan, causing a great loss, there is no doubt. I have tested this out on the scales to satisfy my own mind. Take a single super that is a half to two-thirds sealed when nectar is coming in freely; weigh the hive for two or three days, then place an empty super of combs under, and note the increase in the daily weight.

* * *

In the editorials, page 94, Feb. 1, will be found some data relative to the chilling of bees in winter, that may well be considered by us in "sunny" California—not that we have temperature that hovers below the zero-mark, but that we lose many bees by being chilled in the field. In the above-mentioned editorial an instance is given where bees were suddenly chilled by a cold wind and rain storm, while at play, and were unable to return to their hives. A coat of ice was frozen over them for a period of three days, after which they were thawed out and warmed sufficiently to enable them to return to the hive, which they did. I have had such a variety of experiences with freezing, chilled, and so-called "winter killed" bees, that at the present time my mind is unsettled on the subject.

Our loss during the spring months by bees being chilled while in the field is a well-recognized fact. If a bee will stand the plight of being frozen in a coat of ice for three days and then be able to return to its hive, why should our loss be so great? There is seldom more than a few days at a time when the sun does not shine sufficiently to give any bee that may have been chilled by the wayside sufficient warmth to renew its activity. Then what becomes of bees that are left in the field on cold days?

During the later 80's I made some observations in the East relative to bees remaining in the field over night. I satisfied myself that they quite often did so, returning in many instances in the early dawn when

no bees had left the hive going to the field, and proved to my satisfaction that they were returning from the previous day's trip. But there the climate is quite different from ours in the West. The night air is quite often as warm as during the day, and the only reason a bee would have for staying out would be that of being overtaken by darkness. I have made similar observations in this state, but have concluded that, if a bee is left in the field over night, it either never returns, or is so late in the day returning that it could not be told from any others that were returning. This is explained principally by the fact that at sundown here the air begins to cool rapidly and they are warned of night's approach, which drives them homeward.

But our loss seems to be from chill that occurs during the day, and holds them out during the day or even longer. There is a loss, and a heavy one; but why, I am not able to say positively at this time. There is a possibility that, when a bee is overcome with cold when full of nectar, it may not have the recuperative power that it has when not loaded. The heat generated by the bee's body may be sufficient to revive it; but when cold nectar fills its sac, and it is unable to disgorge it, it may not have sufficient heat to overcome the chill of the nectar. We find them dead under orange-trees and on the sage and other flowers after they have fallen victims to cool air.

* * *

Mr. Doolittle makes some interesting suggestions in the March 1st issue about breeding bees for certain purposes. After opening several phases of the matter he asks if there is a reader who can give any light. He has opened a good field for thought, and as he has asked for light I will give at least some suggestions. There may be a difference worth breeding for in the ability of some strains to reach the honey of certain flowers that others fail to reach. I am not ready to believe that a strain of bees bred in New York or Iowa will work differently than the same strain would in this state. There is a possibility that a strain bred for many years in the South would not winter as well in the North as northern-bred bees. The period of time that would be required to bring about any great change would be more than the allotted time of man.

Such changes come about with an evolutionary rather than a revolutionary movement. With the modern way of transporting queens many hundred and even thousands of miles, and the constantly changing of blood from north and south, it is hardly likely that any great variation will ever be noticeable—at least until many generations have been bred under the same climatic conditions. It is quite true, as Mr. Doolittle says, "It is one of the laws of nature that the further north or south of the equator any animal or plant can live, the tougher and hardier it becomes." But this very law of nature was established after many years of gradual hardening and adaptation. When we compare the life of a bee to that of other forms of animal life it is indeed very short, and I believe a change in climate would not affect more than a generation or two of bees. There may be, however, a greater difference than I am aware of.

I have noticed that the bees from queens shipped to this climate from the North are more subject to paralysis than our native-bred bees; but the same has been true of queens from Texas and other southern localities. I have never noticed that there was any material difference in those raised in the South from those raised in the North. My experience with southern-raised queens shipped to the North was made some years ago, and I am somewhat hazy on the exact results of my experiments. It is not my intention to say that all queens from the North produce paralytic bees in the South, but, rather, that it is more prevalent than with those bred in the South.

On this line the thought comes to me that we have the two phases of the situation very near home. Some may remember an article I had in these columns a year or so ago, on bee life in the San Bernardino Mountains. The bees that now inhabit those higher altitudes, where snow covers the ground from early winter until late spring, are the bees that a short time ago nestled under the orange-trees of the valleys. It is even possible that the swarm of last summer is now wintering near the timber-line where the temperature hovers near the zero-mark during the entire winter. I have no doubt that a colony taken direct from our valley apiaries to the zero weather of the higher mountains would winter fully as well as those that have been in the mountains for many years. There has been an effort for many years in this climate to acclimate orange-trees to stand a lower temperature; but the result was much like the man's horse that he had trained to eat less and less until, when the job was finished, the horse was dead. There is, as Mr. Doolittle says, "a difference in different colonies in the same locality as to the successful outcome at the end of the season." But we find the colony that forges to the front this year is, as a rule, behind the average the following year.

Conversations with Doolittle

At Borodino, New York.



PREVENTION OF AFTER-SWARMING.

"Will you tell us how to control after-swarming? Last year during haying time, after the colonies had all cast their prime swarms, after-swarming became a perfect nuisance."

Persistent after-swarming is one of the disgusting things where natural swarming is allowed, and is hard to stop after the bees once get started. Some of our practical beekeepers depend upon hiving the prime swarm in a new hive on the old stand, and immediately carrying the old colony to a new stand a rod or more away, reasoning that, with the loss of bees which go with the swarm, and by a still further loss by all of the flying bees returning to the old location and joining the swarm, the parent colony will be so reduced that the bees will of themselves give up all idea of further swarming. They tear down all queen-cells but one, or destroy all embryo queens after the first young queen has emerged from her cell. Thus after-swarming will be done away with by this one change of location with the old colony. This does not always work in all localities, for there is an occasional colony which will settle down in an hour or two after being carried to a new stand, so that the flying bees do not "draw" off, as it is expected they will, and thus enough are left, with the hundreds and thousands continually coming from the maturing brood, to cherish the immature queen-cells, so that perhaps one colony out of four will go on with after-swarming.

Other practical beekeepers consider a modification of the above to be almost perfect, claiming that not one colony in fifty will ever send out an after-swarm if the modified plan is used, which is: Reduce the bees in the parent hive by hiving the prime swarm in a new hive on the old stand, then gradually turn the old hive around beside it till the entrance faces at a right angle from that of the new hive. Next set this old hive on the opposite side of the new, with the entrance facing the same way as the new, and as it did when the swarm issued, then gradually turn it toward the left. In four or five days the most of the flying bees will have joined the swarm in the new hive. In two days more, or seven days in all, at about two o'clock, when the bees are flying freely, the old hive is to be carried to a new stand, and left there. This gets the new recruits of flying bees in with the swarm, and still further reduces the bees in the old hive till there are no more left than to care for the small amount of brood. For this reason all thoughts of swarming are taken away, the immature queens slaughtered in their cells, and the young queen, due to emerge from her cell on the seventh day after the prime swarm issued, becomes the mother of the colony. If, in addition, the super that was on the old hive when it swarmed is immediately taken from the parent hive and put on the new hive into which the swarm was placed, this will not only reduce the bees in the old hive, but give an impetus to the swarm by way of making it at once enter the sections. This impetus, together with the many young bees that are thrown in with the swarm, with each turn of the old hive, will lead to a greater yield of section honey than under any other circumstances. Good results can be secured, especially where light hives like the Heddon are used. But with the ten-frame Langstroth or any double-walled or chaff hives, this gradual turning of the old hive and carrying it to a new stand is a laborious, time-consuming operation.

The plan which suits me best is to hive the swarm on a new stand, allowing the parent colony to remain where it always stood, and in some short way putting the date of issue of the prime swarm on this old hive. On the evening of the eighth day go to this hive and place the ear against the side of it; and if the bees have concluded to cast an after-swarm you will hear the first-emerging young queen piping above the gentle humming of the bees inside. If you do not hear it, listen just a moment each evening till the fifteenth day. If not then, you may know that no swarm will issue from that hive as an after-swarm. If you do hear it, you may know that one of the young queens has emerged from her cell and is at liberty among the bees, and that an after-swarm is likely to issue the next day. The next morning, after hearing a queen piping, open the hive and shake the bees off each frame of comb, when you will carefully look for queen-cells, pinching off every one as soon as seen, and shaking the bees in front of the entrance, into which they will run as fast as shaken. If the colony does not have a super, put one on, when all swarming will be done away with, as you are certain that the bees will now have only the one queen which was piping. When worked in this way, both the new swarm and the old colony will give good results in section honey.

GENERAL CORRESPONDENCE

MOSES QUINBY, FATHER OF PRACTICAL AMERICAN BEEKEEPING

BY LYMAN C. ROOT

On account of my long acquaintance with and relationship to Mr. Quinby, I welcome with the greatest satisfaction this Quinby number of GLEANINGS and the reprint of the first edition of his "Mysteries of Beekeeping." This spring is the fortieth anniversary of his death; and the facts of his life, familiar to all beekeepers at that time, will bear repetition now for the younger generation.

Moses Quinby was of English stock, descendant of William Quinby, who came to America prior to 1664, and settled in Westchester County, being one of its patentees.



FIG. 1.—Moses Quinby's home in Greene Co., N. Y.

The family continued to reside in this county, and Moses Quinby was born in the town of North Castle, son of William Quinby and Hannah Sands, on April 16, 1810. During his boyhood his family removed to Coxsackie, Greene County, New York; and living in both places in the country he was early associated with life on the farm and in the woods and fields, and his knowledge of the habits of birds and animals began at an early age.

Here in the town of Coxsackie, in 1828, at the age of 18, he earned his first money, working in a sawmill, and with it purchased his first swarm of bees and began the twenty-five years of study and experiment which prepared him for the writing of his book, published in 1853. In 1832 he married Miss Martha Powell Norbury, also of English extraction, and, like Mr. Quinby, a Quaker. They were married at the Norbury homestead. From this time till his removal to the Mohawk Valley he lived at the home shown in Fig. 1. There was a mill on the place, the ruins of which may still be seen in the picture on the cover of this number of GLEANINGS, and he earned the support of his family in these early years running the turning-lathe and doing cabinet work, many specimens of household furniture made by him being now the valued possessions of his granddaughters. Here also he made his hives and the first honey-boxes. It was gratifying to me on a recent visit to find remaining, after eighty years, so many evidences of Mr. Quinby's work at his early home. In Fig. 2 may be seen the terraced side hill where his rows of hives were arranged. I have reason to believe that at this period there were more bees kept in this section than in any other part of the United States. For years after Mr. Quinby's death I have been to this location to buy bees to replenish my home apiaries. On a recent visit I saw small apiaries, many of them using the form of hive Mr. Quinby had recommended.

He says he "commenced without any knowledge of the business to assist him, save a few directions about hiving, smoking them with sulphur, etc." Beekeeping was considered a matter of luck. His friends and neighbors on all sides discouraged him. One wise old man predicted failure for him because he pottered with them too much, boring holes in the top of the hives and disturbing them. All of this advice only stimulated him to greater action. He prefixed to the word "luck" a big *P*, and underlined it.

Here he spent twenty-five years experimenting and writing, with a determination



FIG. 2.—The terraced ground where the rows of hives stood 80 years ago.

to place beekeeping on the same successful financial basis with other branches of agriculture. All his experiments during this period were made with bees in box hives, there being no better ones at that time.

His first move to avoid destruction of the bees in securing the honey was by boring holes in the top of the hives, and finding that the bees would fill large boxes put over the hive. These were the forerunner of the super and section. Another menace to success in beekeeping was foul brood. Rereading the chapter in his first book, in the light of the modern science of contagious diseases and bacteriology, shows it to be a marvel of careful observation and accurate reasoning that would do credit to the present day. The principles of his treatment of the scourge can never be changed. These and many other facts Mr. Quinby found had never been published; so, being by nature philanthropic, and having an unselfish desire to help others in a practical way by sharing his knowledge, he wrote this accumulated experience of twenty-five years into his "Mysteries of Beekeeping Explained, being a complete analysis of the whole subject," as the title-page quaintly states. The book was written in the room pictured in Fig. 3, by the light of a tallow candle. As I reread the book I realize how fully up to date it was for 1853, and how fundamentally correct were his statements and deductions on many points. It bears evidence of being entirely the author's own work. He started with no knowledge of the subject, but with an inquiring and open mind; had no help from others, and only theoretical information from the limited literature on the subject of bees. The keynotes of its success appear to me to be the scientific attitude of its author, unusual at that period—the clearness and plainness of its



FIG. 3.—The room where Mr. Quinby wrote the 1853 edition of his book.



FIG. 4.—The Quinby home at St. Johnsville, N. Y. Mr. Quinby moved here in 1853, the year his first book was published.

style, and the effort to help and instruct the reader rather than impress him with the accomplishments of the writer.

We do not know just when he was able to make beekeeping his sole business and the support of his family; but he certainly did so after his removal to St. Johnsville, Montgomery County, New York, in 1853, the year his first book was published. During the next ten years he owned the largest number of swarms at any time during his business career, and began to send large amounts of honey to the New York market, even while still using the box hive. There being only a moderate demand at that time he nearly glutted the market. This was, indeed, the beginning of the reconstruction period in beekeeping. In 1856 Mr. Quinby's attention was called to Mr. Langstroth's invention of a movable-comb hive. He saw its advantages, and at once adopted it in a modified form. Then followed the introduction of Italian bees, honey-extractor, comb foundation, single sections for comb honey, and his own invention of the bee-smoker. These were indeed gratifying days to Mr. Quinby. Who was there in all of the beekeeping world so well prepared as he from the standpoint of practical experience to meet the needs of this wonderful forward movement?

Mr. Quinby's non-swarming standing frame hive enabled him to accomplish large results under his management. Much might be said in regard to Mr. Quinby's preferring the larger frame. Marked success can be secured only by extremely populous swarms. I have proven the larger frames very advantageous to that end.

I shall never forget the enthusiasm which was caused at our home when the words "centrifugal force for removing honey from the combs" were received in the report of the invention of Major de Hruschka, of Vienna. An old fanning-mill, which had been used for cleaning grain, was at once taken apart, the fans removed, and wire cloth stretched around its four sides. A larger box was made, inside of which this frame was arranged to revolve, and with the gearing of the fanning-mill it was set in motion. The gratification with which Mr. Quinby saw the honey thrown from the first combs cannot well be described. He soon made an extractor in more workable form, which was afterward perfected by A. I. Root, and known as the Novice extractor.

Mr. Quinby realized that, though fearless himself, people were deterred from keeping bees by fear of being stung. Smoke had been used in various crude ways; but he knew that, if it could be easily and conveniently adapted, it would be a great boon, especially to the amateur. His invention of the bee-smoker did this, being so arranged with upright bellows and fire-tube as to burn standing upright, but to go out when placed on the side, and to be easily manipulated wtih one hand. The principle of it has never been improved upon.

New York state where Mr. Quinby's in-

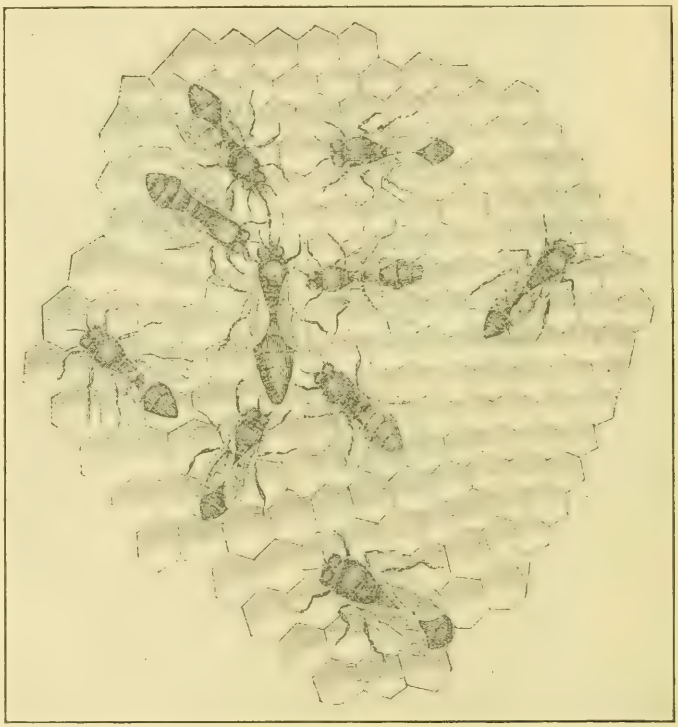
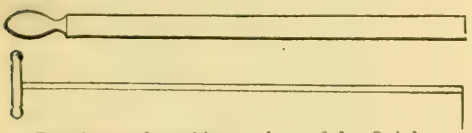


FIG. 5.—Queen, drone, and workers. This exceedingly accurate drawing was made 50 years ago by Mr. Quinby's daughter, who afterward became the wife of L. C. Root. The illustration was used in the 1865 edition of the book, and has been very widely copied. See article by P. H. Elwood, page 281.

fluence was most in evidence, became the largest honey-producing center in the world. One of the first articles he ever wrote on bees for publication was for a Philadelphia paper, expressing doubts as to the possibility of a writer having secured a gain of twenty pounds of honey from a swarm in two weeks. In these later days he had seen that amount gathered in two days, and five hundred pounds of extracted honey taken from one colony in a season. Mr. Quinby sent in these days from five thousand to thirty thousand pounds of honey to the New York market annually.

While essentially a scientist and teacher, his first object was to enable others as well as himself to make beekeeping a commercial success by knowing how to gather in quantity this useful, natural food-stuff and delicacy. As Mr. Quinby became well known from his books and articles in agricultural papers, his home was quite a center for those seeking the information he so gladly imparted. Mr. Quinby was never so happy as when passing on his knowledge and experience to others. Few people who were not personally acquainted with him can realize how devoted he was to his questioners, whether in person or by mail or through the press. From the start to the last evening of his earth life he never proved a principle in bee culture the benefit of which he did not give to the public. Two hours before he passed away he was at his desk, where he left an unfinished article.



Pruning and grafting tools used by Quinby.

The late Captain J. E. Hetherington was one of his most energetic pupils. It is still a joy to me to recall his enthusiasm during his frequent visits to Mr. Quinby's home, and the eager way in which he asked questions and received answers. He soon became one of the large bee-owners, first of box hives, but, as improvements followed, always up to date. Of these early visitors, almost the only one living is P. H. Elwood, of Starkville, New York, then as now the intelligent, thoughtful worker and genial friend.

In 1865 Mr. Quinby published a revised edition of his book, and from the tone of the preface it is gratifying to see his pleasure in the success and popularity of this first edition.

In March, 1870, the Northeastern Beekeepers' Association was organized at Albany, with Mr. Quinby as its first president, an office he held for five years, declining re-election at the meeting preceding his death. He was elected president of the North American Beekeepers' Association, at Cleveland, in 1871, and served one year.

Thus with modest honors and much satisfaction in his work and in the fruit-growing on his place, a happy home life and wide outside interests in the anti-slavery cause, temperance work, and all good and progressive endeavors, the years went by. Death came suddenly on the night of May 27, 1875, and a life of usefulness was over. To quote from obituaries printed soon after: Mr. J. H. Nellis, of Canajoharie, New York, said in the *American Bee Journal*, June, 1875:

> Long may we remember the unassuming, pleasant, hearty manner of the man whom we respected as a father! Indeed, his cheerful service of time, money, and hospitality to those who wrote to him or visited him from curiosity or to learn all they could from him, without returning even a word of thanks, was, to others more selfish, a matter of much surprise.
>
> Our feeble words fail to express the deep appreciation which we had of Mr. Quinby. We consider him the most successful founder of modern bee culture in America, and a man of unswerving conscientiousness, truth, and purity.
>
> In short, we sum him up as a deep, progressive thinker, a real philosopher, and a genuine philanthropist, who should long be held in grateful remembrance by the American people.

Captain J. E. Hetherington, in his presidential address before the Northeastern Beekeepers' convention, at the meeting following Mr. Quinby's death, summed up his character as follows:

> His life has been in every sense a life of usefulness, and not wholly devoted to the interests of bee culture, for he took a living interest in any movement he thought would benefit society; and as an advocate and helper in the temperance work he did no mean service.
>
> He possessed true kindness of heart, and regarded it a religious duty to make all better and happier with whom he came in contact, and regarded that life a failure that did not leave the world the better for having lived.

I am writing this article with the extreme desire to show Mr. Quinby's devotion to his chosen calling. It would be impossible for any one who did not come in daily contact with him in his manipulations of bees, in the beekeepers' conventions, and, most of all, in his home, to have a full appreciation of how completely his work filled his thoughts. How well I remember the emphasis he gave the words when he once said to me, "I want it distinctly understood that I cannot afford to spend my time making money!"

He gave forty-seven years of constant application in honest effort to place beekeeping on a firm business basis. I am

somewhat acquainted with the history of the beekeeping of the past, and I feel justified in pointing with pride to these forty-seven years of devotion which should warrant the name of "Father of practical commercial beekeeping in America."

UNCLE QUINBY IN THE OLD DAYS

BY HIS NEPHEW, T. S. UNDERHILL

In calling up early boyhood remembrance of Uncle Quinby I make note of a few distinctive features of intimate social or family characteristics which were of a cordial, happy nature, such as playing the flute, his military outfit as captain of militia, and particularly his quaint sayings and axioms for which he was noted, such as: "Subdue your appetites and you conquer human nature;" "What you get for nothing is apt to be mighty expensive;" "When a man boasts of acting disinterestedly, it's safe to say he has an ax to grind;" "The lucky man is one who locks the door before the horse is stolen." One time, when, boy-like, I was proudly sporting a finger-ring, he said, "Tommy, I have always noticed that pigs that have to root for a living don't want to be rung."

His helpfulness and wise counsel were widely recognized. To us boys he was undoubted authority and an impartial judge. I well remember the early rural home in the town of Coxsackie, New York, where the Quinby residence was on a hill that we called "Honey Hill," in contradistinction from the valley called "Honey Hollow," of which the creek fed the mill-dam pond at the foot of the hill. This early remembrance dates from about 1840, when I was five years old—at least before my school age, as I would go with an older brother on his way to school and spend the day at Uncle Quinby's. This boyhood association with Uncle Quinby was maintained all through youth and early manhood. I remember the milldam, the water-wheel, and the turning-lathe in his cabinet-shop were the wonder and delight of my boyhood days. A day at Uncle Quinby's was a rare treat. "Honey Hill" was a veritable garden of Eden, paths bordered with flowers and fruits in abundance, and the bread and honey was, perhaps, best of all.

The most prominent recollection of the early beekeeping days, before and up to the time of publishing the first edition of "Mysteries of Beekeeping Explained," was the great attraction of his observatory hives, common box hives with glass sides and wood shutters. There is where his first study of the habits of the bee commenced. I remember it was my delight to watch these inspections, his showing me the bees at work, and pointing out the different kinds of bees, especially the queen, and explaining the head of the colony was a queen and not a king as it was usually called in those days. He showed the different cells, particularly the queen-cell, with its wonderful history of construction, and told that at its completion and maturity the young queen would make a piping sound, which would foretell a coming swarm, and then we would, at evening time, listen for the signal at a hive that showed indications of swarming. Sure enough, next day the swarm would come forth, the mother queen with them. This we knew from the fact that I had seen Uncle Quinby catch her in a tumbler as she came out; and wherever he placed her the swarm would alight. These observations and experiments are still fresh in my memory, and in a measure will show the difficulties that attended this early research in those primitive days of beekeeping. From these primitive methods was evolved not only the nature and habits of the honeybee, but the successful practical management of bee culture for producing honey in quantity in marketable form.

This led to the larger field of operation in the Mohawk Valley from 1853 to 1859, during which time I was associated with Uncle Quinby in the management of a number of apiaries in Montgomery and adjoining counties.

In these old box-hive days, the fire and brimstone period of beekeeping, the development of the honey-box was as follows: First: surplus honey in wooden boxes from the top of the hive; next, two 6 x 12 boxes with glass on four sides, under one cover; then four boxes, 6 x 6; after which six boxes, 4 x 6, under the same wooden cover. This was the method employed in securing surplus honey up to 1859, when my connection with the business ceased.

This was the evolution I saw develop under the guidance and direction of Uncle Quinby, whose standard of life was of the highest order, and whose bequest of practical beekeeping was excelled only by his exemplary character, honesty, and integrity.

MOSES QUINBY—A TRIBUTE TO HIS MEMORY

BY P. H. ELWOOD*

Read before the Northeastern Beekeepers' Association, February 3, 1876.

In the history of every profession or occupation we find the names of a few who have outstripped all competitors—men possessed of that rare gift, power of original thought; pioneers who have explored an unknown wilderness, and mapped it for future possessors. In the history of bee culture there are four names that stand out prominently beyond all others: Huber, Dzierzon, Langstroth, and Quinby. Huber, the blind apiarian, who, by his great ability and untiring perseverance, discovered more of the interior workings of the beehive than any other man who ever lived; Dzierzon, the Quinby of Germany, who confirmed the wonderful discoveries of Huber, and added that equally wonderful one of parthenogenesis; Langstroth, our own countryman, inventor of the movable-comb hive (without which there would be no occasion for gatherings like this), and author of a work on beekeeping that, for scientific accuracy and beauty of expression, is not only unsurpassed but almost unsurpassable; and last, but not least, our own Quinby, inventor of the



Moses Quinby

bellows smoker, who, adding largely to the knowledge of his predecessors, combined the whole into a system of practical management unequaled in simplicity and feasibility.

Mr. Quinby's lifework was to elevate beekeeping to the dignity of a pursuit among men, and he performed his work well. Beekeeping as a specialty will date from his time; and if Huber has earned the title of "Prince of Apiarians," certainly Mr. Quinby is entitled to that of Father of



P. H. Elwood, Fort Plains, N. Y. One of the numerous successful students of Quinby.

Practical Bee Culture. He sowed that we may reap. He labored without reward—often, indeed, without an appreciative public. Now that he is gone, beekeepers will miss his counsels, and think more highly of his work.

While he was anxious that the millions of pounds of honey now lost might be gathered, he had no fear of an overstocked market, and often narrated the history of the cheese trade as an illustration, saying that, while this industry was in its infancy, prices were lower than at present, and that the market was really in more danger of being overstocked than now, as the facilities for disposing of the product of the dairy have increased faster than the production. The

* See prenote to Mr. Elwood's further article, page 281.

history of this business he thought would be the history of ours. There may be temporary gluts in this market, as there are in all others; but these will be, not because more is produced than can be consumed, but because the facilities for handling the crop are undeveloped. Our greatest enemy today (outside of those who sell glucose for honey and paraffin for beeswax) is the old-fogy beekeeper who brings his honey to market in the most unattractive and undesirable packages. A small quantity of his honey will supply a large town, and the prices he establishes often prevent the introduction of better goods. It is to our pecuniary interest to make better beekeepers of such men. Yet while Mr. Quinby was doing just this work, very many beekeepers thought him to be seriously injuring their business, and were for ever crying out, "My occupation is gone!"

High as Mr. Quinby ranked as an apiarian, he stood still higher as a man. We who were accustomed to gather at his fireside can never forget his wholesome hospitality. He was a true gentleman, unfettered by the



Moses Quinby and family. This picture of Mr. Quinby is probably one of the last taken, if not *the* last. See the farther article by Mr. Elwood, page 281.

stifling conventionalities of modern life. He was always the same, always having a hearty welcome for his friends and a pleasant word for every one. True to his Quaker education, he was an intense hater of shams, especially of the human kind.

He was honest—a characteristic that is getting to be as scarce as it is valuable. There is no principle in business better established than that "honesty is the best policy." Mr. Quinby, unlike most men, was honest from principle.

The mental rather than the motive temperament predominated in him; that is, surplus vitality would more naturally develop into extra mental work than into intense muscular activity. He was a thinker, an investigator; an originator rather than an imitator. He was calm and deliberate, not excitable; did not plan one minute to execute the next and destroy the following. As he viewed a subject from many standpoints he was not quick in forming conclusions. In quickness he could not keep pace with many who were of lighter caliber than himself. Muskets sometimes hang fire, but big cannon are not usually handled with the rapidity of small arms.

While not easily disturbed in temper, he was not tame in spirit when he had just cause for indignation. He had a very modest opinion of himself, and in measuring others did not set himself up as the standard of perfection.

His last years were his best. His best and most enduring work was done after he was sixty years old. His famous assertion then made, and so ably defended, that cold usually kills the bees, has never been successfully contradicted. He never wrote so well as in the latter years of his life. He continued to improve in both subject matter and manner of expression. His bodily powers were gradually failing him, but his reasoning faculties were never so keen as in the last five years of his life.

With more of the elements of the politician about him he would have ranked higher in life, but his reputation would not have been so enduring. Now his merits are just beginning to be appreciated.

How fitting that a life so calm and pure should have so peaceful an ending! On the 27th of May last he retired at his usual hour in seeming good health and spirits. Before the hour of midnight, without awaking from his slumbers, he quietly passed from time into eternity. Thus, at the age of sixty-five, ended the life work of our counselor, friend, and public benefactor. He was more fortunate than the most of men, for he was able to take with him his most valued possession, the hard-earned accumulation of a lifetime—a noble character.

So live that, when thy summons comes to join
The innumerable caravan that moves
To the pale realms of shade, where each shall take
His chamber in the silent halls of death,
Thou go not, like the quarry-slave at night,
Scourged to his dungeon, but, sustained and soothed
By an unfaltering trust, approach thy grave
Like one who wraps the drapery of his couch
About him and lies down to pleasant dreams.

Starkville, N. Y.

MOSES QUINBY, THE FOUNDER OF COMMERCIAL BEEKEEPING IN AMERICA

BY ARTHUR C. MILLER

Moses Quinby was a pioneer beekeeper. In 1828 he plunged into the wilderness of bee-life with no other knowledge than how to sulphur bees and a few directions about hiving swarms. Without veil or smoker, with black bees in box hives, he worked and won. Not until he had kept bees some years did he see any text-books, and these were imported ones containing little or nothing of value but what he had already found out. Their errors and mistakes were to him an incentive to further research and closer observation. In the preface to his book he says:

It is folly to expect success in beekeeping for any length of time without a correct knowledge of their nature and instincts; and this we shall never obtain by the course hitherto pursued. As much of their labor is performed in the dark, and difficult to be observed, it has given rise to conjecture and false reasoning, leading to false conclusions.

When I say a thing is so or say it is not so, what evidence has the reader that it is proved or demonstrated? My mere assertions are not expected to be taken in preference to another's. Of such proof we have more than enough. Most people have not the time, patience, nor ability to sit down quietly with close observation and investigate the subject thoroughly. Hence it has been found easier to receive error for truth than to make the exertion necessary to confute it—the more so because there is no guide to direct the investigation. I shall, therefore, pursue a different course; and for every assertion endeavor to give a test that the reader may apply and satisfy himself, and trust to no one. As for theories, I shall try to keep them separate from facts, and offer such evidence as I have, either for or against them.

And he did. Every thing must be tested and proved, no guesswork was allowed, and his genius in devising ways to discover the

secrets and actions of bees was wonderful. Nothing was too minute to receive his consideration. His analysis of observed conditions and reasoning back from them to the causes has not been surpassed.

But every thing was done with one end in view—efficiency in his work. Simplicity of apparatus was his constant effort, and in his writings we find frequent reference to costs and profits.

He was making money from his bees while most of the rest of the beekeeping world was trying to learn how to retain any bees at all. The wax-moth was the bane of their existence, while to him it was merely an incentive to keep all stocks strong and to do better beekeeping. The moth was to him an annoyance rather than a menace.

It was not until he had been keeping bees for many years that he had any other smoking-device than the pan of burning tinder on the roll of smoking rags, and then he devised the tube "pipe," later described and illustrated by Alley. This device was a tin tube five to six inches long and half an inch or more in diameter, with a conical wooden plug in one end and a pipestem-shaped plug in the other, both with a hole lengthwise through them. This was filled with tobacco, and held in the teeth when at work, the breath being blown out through it instead of drawn in.

It was years later when he invented the bellows smoker which is now such a necessity to all of us.

A bee-veil he knew nothing of until about 1858, previously using a handkerchief over the back of his head and neck when bees were particularly troublesome. At that time he learned of the wire-cloth protection described by Langstroth, and from it evolved the style now sold under the name of "Alexander," but later Mr. Quinby improved it greatly.

American foul brood he encountered about 1833. He traced its spread to infected honey, and originated the "driving" plan of treatment, of late years called the "McEvoy" or "shake-off" plan, but really Quinby's. Also he speaks of Italians resisting the disease better than blacks.

Quinby was observing, analytical, and resourceful, somewhat impatient with the baseless whims and practices of others; but this attitude was tempered by a kind heart, and with a quiet sense of humor which constantly crops out in his writings.

Here are a few of the very many good things he has said, picked at random here and there, to illustrate his views, the difficulties he labored under, and the way he surmounted them.

He suggested the use of tobacco smoke in the cellar to quiet uneasy bees when taking them out.

As a pollen substitute, he used rye and buckwheat meal or flour mixed with sawdust, and fed on a floor a few feet square with a rim around it, and put on only a few quarts of flour. Those of us experienced in using pollen substitutes will at once see the reasons for and the soundness of his instructions.

Of buying bees he said, "The heaviest hives are not often the best." In writing of preparing bees for winter he says:

> There is almost as much diversity of opinion with respect to wintering bees as in the construction of hives, and about as difficult to reconcile.
>
> Excessively large colonies are unprofitable, as well as too small. Avoid extremes.

Also:

> A first-rate stock may be wintered with very little care in almost any situation; but those of second and third rate require some special attention.

That is a fact worth remembering when we are considering winter cases, etc.

His methods of freeing supers of bees were almost identical with those used by Dr. Miller. They must be good when two such men use them in commercial work. In the days of box hives he writes:

> But what kind of hive shall be made? In answer some less than a thousand forms have been given. The advantages of beekeeping depend as much upon the construction of hives as any one thing; yet there is no subject pertaining to them on which there is such a variety of opinions, and I have but little hopes of reconciling all these conflicting views, opinions, prejudices, and interests.

Of the cost and value of combs he says:

> One important item should be considered in this matter by those who are so eager for new combs. It is doubtful whether one in 500 ever thought of the expense of renewing comb. I find it estimated by one writer that twenty-five pounds of honey was consumed in elaborating about half a pound of wax. This, without doubt, is an overestimate, but no one will deny that some is used. I am satisfied of this much, from actual experience, that every time the bees have to renew their brood-combs in a hive they would make from ten to twenty-five pounds in boxes; hence I infer that their time can be more profitably employed than in constructing brood-combs every year.

Non-swarming hives he placed no reliance in, for he says:

> Further, these non-swarmers are not always to be depended upon as such. They will sometimes throw off swarms when there is abundant room in the hive as well as in the boxes.
>
> But if such hive is only half full, or 2000 inches, it is very common for them to swarm without adding any new comb—proving very conclusively that a hive that size is sufficient for all their wants in the breeding season. When about 1200 inches only had been filled the first year, I have known them to add combs until they had filled about 1800, and then cast a swarm, proving also that a little less than 2000 will do for breeding.

Eighteen hundred cubic inches is close to the comb content of ten L. combs.

Listen to this on bees moving eggs and signs of queenlessness:

During the spring months, in medium and small families, where the bees can protect with animal heat but a few combs, I have often found cells containing a plurality of eggs—two, three, and occasionally four, in a single cell. These supernumeraries must be removed, and frequently may be found amongst the dust on the bottom-board.

If you have a hive that you suspect has lost a queen at this season, her presence can be ascertained nine times in ten by this method. Sweep off the board clean, and look the next day or two after for these eggs. Take care that ants and mice have no chance to get them. They might deceive you, being as fond of eggs for breakfast as any one. When one or more are found, or any immature bees, it is sufficient; no further proof of the presence of a queen is needed.

The public of his day had many of the same prejudices and animosities as that of to-day. Among the notions was the belief in loss to crops through the nectar taken by the bees. He met it by the same answers that we do.

Of the sagacity of bees he writes:

On this subject I have but little to say, as I have failed to discover any thing uncommonly remarkable, separate, and distinct in one swarm that another would not exhibit. I have found one swarm, guided alone by instinct, doing just what another would under the same circumstances.

Then he proceeds to cite many of their wonderful acts, which, by the way, they do in exactly the same way to-day, and concludes by saying:

I have mentioned these to show that a course of action called forth by the peculiar situation of one family would be copied by another in a similar emergency, without being aware of its ever being done before. Were I engaged in a work of fiction, I might let fancy reign and endeavor to amuse, but this is not the object. Let us endeavor then to be content with truth, and not murmur with its reality. When we take a survey of the astonishing regularity with which they construct their combs without a teacher, and remember that the waxen material is formed in the rings of their body—that for the first time in life, without an experienced leader's direction, they apply a claw to detach it, that they go forth to the fields and gather stores unbidden by a tyrant's mandate, and throughout the whole cycle of their operations one law and power governs. Whoever would seek mind as the directing power must look beyond the sensorium of the bee for the source of all we behold in them.

Here is his statement concerning Langstroth's book and hive, written after he had used the hive for a couple of years:

Unexpectedly, I think I have found a hive superior, in many respects, to the simple box. It is not pretended that a swarm of bees located in it will store a greater amount of honey in a given time; but the advantages are in the control of their operations, and knowing their condition at all times.

From this he soon went entirely into the use of frame hives, modifying them in size and shape to meet his own ideas, saying:

It is not very likely we have got the best form of the hive. I have one quite different from Mr. Langstroth's, the patentee; but whether it is better is for others to decide. I can only say that I am suited with it better than with his. A few will like mine because I do; others, his because he recommends it. I have not the least objection to any one's improving it or using it as either of us does. There is not the least doubt in my mind that whoever realizes the greatest possible benefits from his bees will have to retain the movable combs in some form. The principle (movable combs) can hardly be dispended with.

The more we read Quinby's writings, the more we admire and like him. Had his work been given the same publicity as Langstroth's, it is difficult to doubt that commerical beekeeping would now be far ahead of what it is. Quinby was a great pioneer, and to-day his book is as good and as valuable as ever. It is one of the classics of bee culture, and no beekeeper can rightly feel well posted in the art until it has been read.

To Quinby the beekeepers owe a great debt, and of him we can truly say the world is better for his having lived.

Providence, R. I.

A DAY WITH M. QUINBY

BY J. E. CRANE

It was in the autumn of 1869 that I spent a day with M. Quinby. A year or two before I had bought several hives of Italian bees of him, including a real imported queen, paying $20 for her. More than this, I had read and reread "Mysteries of Beekeeping Explained." In fact, I had studied it until I almost knew it by heart. The old book, as I look at it now, appears to be pretty well worn out. I believe most earnestly the words found in the preface of this book, "The simplest directions of a reliable practical beekeeper who studies the science with an honest enthusiasm are invaluable to the tyro in apiarian knowledge." I believed the principles laid down in his book were the sure foundations of success if faithfully followed. More, I believed Mr. Quinby the largest or most experienced and successful beekeeper in the United States.

The season had been a good one with me, with a good crop of honey secured by following the directions given in "Beekeeping Explained." How better could I spend some of the money the bees had brought me than by visiting this prince of beekeepers?

It was late September or early October when I went to Troy, stopping over night and completing the journey the next morning, that I might have a full day with him

at St. Johnsville. The name of that town still has a charm for me, different from any other on the face of the whole earth.

Leaving the train at the station I soon found the unpretentious home of Moses Quinby, and introduced myself to him as well as my embarrassment would permit. I found him, with the assistance of L. C. Root, engaged in the somewhat prosaic work of feeding bees. His method of feeding was quite different from any thing I had ever heard of, and I will give it.

One or more combs were laid down flat in a tank, and sugar syrup or honey poured upon them from above in such a way as to fill the cells. Then the combs were turned over and the other side filled. After the surface honey had drained off they were given to the bees in exchange for empty ones, and the job completed at once. I have used this method several times in early spring when I had no combs of honey to give to colonies short of stores. This season had been a very poor one in that part of New York. Mr. L. C. Root told me at that time that not a single wild colony would survive the following winter, and, as a consequence, there would be no difficulty in rearing purely mated Italian queens.

I was invited to take dinner with his family, and was duly introduced to Mrs. Quinby and a daughter. There was one thing that puzzled me; and that was to determine the relationship of L. C. Root to the family. Was he just a helper, or was he a son-in-law to Mr. Quinby? I had never heard of him before. I thought it would not be quite the thing to inquire, and so the puzzle remained; but of one thing I felt sure—that if he was not a son-in-law he was likely to become one at an early date.

To the east of the Quinby home the ground rose quite steep from the Mohawk Valley, and the ground had been terraced and set to grapes, which were then ripening.* After dinner Mr. Quinby went out with a large basket on his arm to gather grapes for an hour or two. This gave me an opportunity to visit with him without interruption, and I appreciated it most fully. I told him of the extractor I had made, and with which I had secured 240 lbs. of honey during the preceding summer from one colony. He told me of making one himself, using the gearing of an old fanning-mill for his extractor, and showed me a part of it; but the season had been so poor he had not used it.

He told me of a young friend of his who, he thought, had met with unusual success, and urged me to visit him. I thought I could not at that time, but did later, and found him to be none other than Capt. J. E. Hetherington. He told me also of his brother, D. W. Quinby, of New York, who was a commission merchant, and to whom it was safe to consign honey for sale, and to whom later I shipped many tons of honey.

The latter part of the afternoon, he with Mr. L. C. Root went over a lot of small nucleus hives, looking for young laying queens. I noticed that he used no smoke, and seemed to get along very well—rather better than Mr. Root did.

The impression Mr. Quinby left on my mind was that of a kindly, elderly man, not as talkative as some beekeepers I have known, but all he said was to the point, and had weight. He seemed glad to help a beginner in beekeeping—glad to let his light shine rather than to cover up what he had learned lest others should profit by it, although he made no display of his superior knowledge and experience.

That Mr. Quinby laid the foundations broad and deep for practical beekeeping on an extensive scale there can be no doubt. He cleared away the fogs and mists of ignorance that hung over the mysteries of the hive, by his own investigations and experience.

The younger generation of beekeepers have no conception of the ignorance of the average beekeeper sixty years ago. Fulton's Clermont, that steamed proudly up the Hudson over a hundred years ago, at the rate of five miles an hour, would not, doubtless, serve as a perfect model for a modern liner; but the success of this experiment laid the foundation of navigation by steam. The progress of beekeeping has gone forward from similar humble beginnings.

Middlebury, Vt.

LANGSTROTH AND QUINBY COLABORERS IN PIONEER BEEKEEPING

BY W. P. ROOT

I trust I shall not be making the personal equation too prominent when I say that very few persons, even among practical beekeepers, have more keenly enjoyed for thirty years an opportunity to witness the development of an idea or system which once engrossed the attention of the man

* See Fig. 2, page 268.

whose memory is recalled in this issue. I have read all of his writings carefully, especially his "Mysteries of Beekeeping," and rejoiced to note how

> He scattered the hosts
> Of hobgoblins and ghosts

till the word "mysteries" became almost a joke. But while I speak of him I do not forget Langstroth, for to do so is to read Romeo without Juliet.

I have no patience with comparisons of some men with others as to their work done for humanity. It reminds me of what our old friend E. E. Hasty once wrote me. He said he had studied for years to find out which one of his shear-blades does the cutting. They work together by working against each other. The physical features of men may be compared, but there comparison ceases.

To carry out some great work, it is clear that Providence has designed at least two persons to do it. This was the case with Quinby and Langstroth, and yet each worked long at the same task without being aware of their partnership. These two men were born the same year, and their early years permitted none of the luxuries and few of the conveniences of modern life.

It commands our admiration when we see a man like Mr. Quinby rising up from the degrading superstitions of his time, brushing away so much of the fog that surrounded him, and getting down to a rational explanation of things by assuming that regularity prevails in God's works.

Mr. Langstroth's invention was beginning to be felt in the world when Mr. Quinby also was startling the commercial world by doing with bees what he himself thought he had shown in print could not be done—yes, doing it seven times over. But his remarkable success (seldom surpassed to-day) arose from his knowledge of the habits of the bee and a close study of the conditions that induce bee diseases and the causes that will check them. His fame had reached Ohio, and it is not to be wondered at that Langstroth felt that "he must increase, but I must decrease." Filled with annoying surmises, unworthy suspicions, and harassing fears, Mr. Langstroth happened to be here at A. I. Root's home when this evil spirit haunted him the worst. Mr. Root has described how Mr. L. told him one morning his watch had said all night, "Quinby, Quinby, Quinby," adding that he was about to start for Mr. Quinby's home and have a settlement. It was a question whether the prevailing spirit would lead them to shake hands together or shake fists at each other. But the result was a perfect understanding, cementing a close friendship during the short period of life that remained to Mr. Quinby, Mr. Langstroth living twenty years longer.

The fact was, Langstroth had been engaged in perfecting a home for the bees while Quinby had been studying their individual habits, although in this latter respect Langstroth was the peer of anybody at that time. The distinctive lifework of each dovetailed together so nicely with that of the other that modern apiculture has grown up around their inventions as the honeysuckle does around a pole.

Quinby was not slow to adopt movable frames, as he immediately saw their advantage; and if he could have seen by revelation the implements now in use for extracting, etc., he would have said, "The half has not been told."

Although Mr. Quinby said he considered life to be too short to be spent in making money, it is said he amassed at least a comfortable competence, while Mr. Langstroth's inventions and discoveries never yielded him enough for even a support.

But aside from the inestimable benefits conferred on humanity by the labors of these men among bees, we owe them still greater honor for the beauty of the lives they led in their individual capacity; for in all they did they "looked through nature up to nature's God."

A BEEKEEPER'S FEELINGS TOWARD MOSES QUINBY

BY LEWIS L. WINSHIP

No man has done more for the beekeeping fraternity at large than Moses Quinby. He began keeping bees when only nineteen, and, until his death at the age of sixty-five, was actively engaged in trying to help beekeepers. He had only one equal in the United States, and that was Langstroth, to whom was given the honor of inventing the movable-comb hive. What difficulties must those early beekeepers have passed through! When Quinby first began beekeeping, the old box hive was still in vogue; and when one wished to take off honey the bees must of necessity be smoked with brimstone, as at that early date such a thing as a movable-comb hive had not been thought of. What would the present-day beekeepers do without comb foundation, smokers, and a



La Manda Park, Cal., field meeting at the apiary of F. M. Stone.

hundred and one other very useful articles which make up a beekeeper's world?

These articles are to the beekeeper of the present day what tools are to a carpenter. But in Quinby's day no articles to further the work of the bee were to be had. This made it all the harder for him, a lad of nineteen, to make a success of his chosen profession.

Quinby (unlike many inventors) was not a rich man. He was trying to improve conditions and methods then in vogue in regard to the management of bees. When he invented some article which he thought of value to beekeepers, he gave it directly to them, and did not rush off at once to patent it. Some may call this poor management on his part, and doubtless he would have been a richer man had he patented some of his inventions. But, nevertheless, if Quinby had been as narrow-minded as some people of his time we should be without many things to-day which have helped further the beekeeper's cause.

I have a copy of "Quinby's Beekeeping" which was published in 1866, and find many articles in it which are worth reading in 1915. This book was published nearly half a century ago, and since that time beekeeping has been nearly revolutionized. Even so, when I have the time, I read the book through, and hardly a year passes but that



F. M. Stone's apiary, La Manda Park, Cal. Geese keep the grass down.

I read it through from one to three times. The book seems to become more interesting every time it is read, in that it is a man's real experience and not written merely for pay. I wish every beekeeper in the land could have a copy, and I can guarantee that they would be more than pleased with one.

In conclusion, let us all hope that another man like Quinby will help beekeepers as much as he did. I know of only one monstrous invention yet to be thrust upon the world—artificial comb honey. Let us hope that some one will invent this and claim the $1000 reward now offered by the A. I. Root Co. for the manufacture of a single section of comb honey which so closely resembles the original as to deceive the average person.

Springville, N. Y.

MOSES QUINBY

BY P. H. ELWOOD

When Mr. Elwood sent the photograph showing Mr. Quinby and his family, page 274, he enclosed a copy of an address that he delivered in 1876, saying that he would send a further article in a few days. As it was already late we feared that the article might not reach us in time, therefore we decided to use the address, to be on the safe side. The following article came just in time to be used in this number.—ED.

Whoever finds it difficult to obey the command "Love thy neighbor as thyself" may turn to the life of Moses Quinby for inspiration and example. The ruling passion of his life, inspired by a true brotherly love, was the betterment of others; and no estimate of his character can do him justice that does not fully recognize his life-long devotion to his fellow-man. He was possessed of the missionary spirit and was found in the front rank of any undertaking that promised to elevate mankind. In material things beekeeping was his theme; and for many years much of his time was spent gratuitously for the instruction of beekeepers, not only in the bee and agricultural journals, but in his modest St. Johnsville home, which might appropriately have been named the Quinby School of Apiculture, with classes for all grades. Captain Hetherington says, "Twice I was at his home in June, when I found there three from a distance to whom he was imparting instruction; in fact, his house was quite a hotel most of the time, with this difference—you could get no grog, neither could you pay a bill except by imparting to and helping others in the same generous spirit.

Not all, however, were willing to pay in this way. One man who came and stayed, and was particularly anxious to get all information that would be of help to him, said, when ready to go, "My neighbors will want to find out all I learned down here, but I won't tell them a thing. They won't be willing to pay a cent for it." Here the seed sown by a generous hand surely fell upon stony ground. The man, however, represented only a few of his visitors, nearly all of whom were appreciative, and many of whom were leading men in bee culture, able and willing to give valuable ideas in exchange for the ripened experience of Mr. Quinby.

When Mr. Quinby commenced beekeeping bees were kept in box hives, and honey-getting was by the brimstone-pit, a murderous way unknown to many beekeepers of today, but so well described by the poet that it is given here.

Ah! see where, robbed and murdered in that pit,
Lies the still heaving hive, at evening snatched
Beneath the cloud of guilt-concealing night;
And, fixed o'er sulphur while not dreaming ill,
The happy people in their waxen cells
Sat tending public cares.
Sudden the dark, oppressive steam ascends,
And, used to milder scents, the tender race
By thousands tumble from their honied dome
Into a gulf of blue sulphurous flame.

—*Thomson.*

For the box hive he early substituted the movable-comb hive and glass surplus boxes. With these and the bellows smoker, which he originated, there was no longer need of the sulphur torch, for whatever honey was wanted could be taken without destroying or even angering the bees. Mr. Quinby unselfishly took no patent on his smoker, preferring to give his invention to his fellow-beekeepers, taking the high moral stand since taken by the medical profession, that any valuable discovery or invention made by any one belongs not to him alone who made it, but to all alike for the benefit of humanity. No invention is born perfect, and some of the improvements on the Quinby smoker have been valuable. One inventor took the Quinby smoker, and, cutting off the connecting tube between the bellows and fire-box half an inch or more, had this missing half-inch patented. Then, denying

Mr. Q. and other makers the privilege of using the patent, he commenced the manufacture of the unpatented Quinby smoker, but with this slight omission. Because this small change made the Quinby smoker more efficient in holding fire the cut-off became a necessity; and because the principal or basic ideas of the invention had not been patented by Mr. Quinby it became comparatively easy to appropriate these ideas belonging to the public, and establish a monopoly. He attached his own name to the smoker, and for many years advertised it as the "original bee-smoker." But all attempts to deprive Mr. Quinby of the credit of being the originator of the bellows smoker have failed to impress well-posted beekeepers; and we read on page 263 of the A B C of Bee Culture, 1895, these words: "It is to the credit of Moses Quinby for first giving us a bellows bee-smoker."

Taking the Huber hive as a basis he invented a closed-end standing-frame hive unequaled for wintering, springing, and moving bees; and some of us think it unsurpassed for other purposes.

As an inventor, however, his fame will rest on his invention of the bellows smoker, undeniably the most useful implement in the apiary.

A full account of Mr. Quinby's experiments, and many of them were difficult and expensive, would fill a volume. Forty odd years ago the writer was at his place when he was attempting to induce early brood-rearing before placing the bees on their summer stands. He had twenty colonies in a special repository kept at a summer temperature by artificial heat. This was before the invention of thermostats or heat-controlling devices; and one night a warm high wind arose that so increased the draft of the fire and the temperature of the room that the whole twenty colonies were killed. Yet so possessed was he of the investigating spirit that, to get definite results, he would have repeated the experiment had not his friends dissuaded him from attempting it with the means at his command. He was a careful observer, and his conclusions could usually be depended upon.

It is not too much to say that Mr. Quinby knew more about American foul brood and its treatment and cure than any other beekeeper who ever lived. More than half a century ago, while yet using box hives, he met this deadly disease, and, unaided, he vanquished it by the method that in recent years has strangely been known as the McEvoy plan. American foul brood, so far as now known, is a disease of the brood only, and was rightly called foul brood by Mr. Quinby.

We are able to give a picture of the Quinby family taken in front of their St. Johnsville home—Mr. and Mrs. Quinby, their son John W., their daughter Elizabeth, and their son-in-law, L. C. Root. Mr. Quinby died May 27, 1875, aged 65. Mrs. Quinby, known and highly esteemed by many beekeepers, outlived her husband 26 years, and died at the Root home in Stamford, Ct., in 1901. The son, Rev. John W. Quinby, was educated at Fairfield Seminary, Amherst College, and Harvard Divinity School, his education having been broken into by his service in the Civil War. Immediately after his graduation from the Divinity School he was installed as pastor of the Unitarian Church at Eastbridgewater, Mass., where he remained thirty years. He resigned while still in his prime, and while still doing most efficient work, because he was afraid he might stay until his usefulness was passed. He remained in the same town until he died, in 1911, in his 78th year. The daughter, Elizabeth Quinby, was married to Lyman C. Root in 1869, and they had two daughters—Dr. Stella Quinby Root, who, for the past eighteen years, has been in general practice in Stamford, Ct., and Kathryn Hildreth Root, who holds the responsible position of Supervisor of Home Economics in the Stamford public schools. Dr. Root is quite successful as a practitioner, and stands high in her profession as a skillful administrator of anæsthetics. Mrs. L. C. Root died in 1896 at the age of 59. She was a remarkable woman in many ways, and assisted her father and husband very materially in illustrating and rewriting their books. She was very skillful with her pencil, and many of the illustrations drawn directly from the object to be illustrated are from her hand. One in particular made in this way, the cut of bees and comb (see page 270), is regarded as one of the most accurate representations ever made, and has been widely copied in this and foreign countries.

Of the son-in-law, L. C. Root, nothing need be said to introduce him to the readers of GLEANINGS. As might be expected, both he and his daughters are widely identified with church and philanthropic work in Stamford. Mr. Root is well preserved, and now bids fair to rival Dr. Miller in longevity.

Starkville, N. Y.

THE QUINBY FEEDER

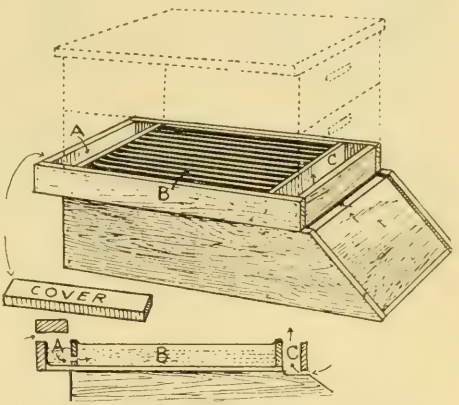
BY J. E. HAND

There have been so many requests for information regarding the Quinby feeder that we thought best to reprint a part of the article by Mr. Hand, which appeared in our Aug. 15th issue for 1907, page 1086. This feeder as used by Mr. Quinby sixty years ago is just as good now as it was then. Mr. Hand's description follows.—ED.

Perhaps the first thing to be considered in feeding back is the feeder. For several years we were handicapped in our operations because none of the feeders that were listed in any of the supply catalogs were of any account for the purpose, so we invented several of our own; and, although some of them were an improvement over the others, yet they were not entirely satisfactory.

Finally we found a feeder illustrated in "Mysteries in Beekeeping Explained" that was just what we wanted; and, although we have used it for more than ten years, we have not been able to improve it, and we are using it to-day just as Mr. Quinby did more than fifty years ago.

The feeder is a tin tray two inches deep, inclosed by a wooden frame of the same depth. The wooden frame is of the same width as the hive, and 2½ inches longer, while the tin tray is the same length as the hive. This tray is pushed to the back end of the frame surrounding it, leaving a space of 2½ inches in front for the bees to pass out and in the hive, and at the same time allows the tin tray to project beyond the hive at the back end for filling the feeders (see illustration). There is also a framework of slats, lengthwise of the feeder, and of the same depth, standing on edge about ¾ inch apart, for the bees to travel over while working in the feeders, so that no bees will be drowned. The feeder rests square on the bottom-board, and the hive rests square on the feeder except the 2½ inches at the back end, which is covered by a board. The



bees cannot get into the place where the feed is poured in, and the feed flows evenly under all parts of the hive, where it will be quickly taken up by the bees.

This feeder will hold six quarts; and after using it quite extensively for feeding back we do not hesitate to pronounce it by far the best one that has yet come to our notice, and we doubt if it can be improved.

HONEY AT THE PANAMA-CALIFORNIA EXPOSITION

Interesting Display in the San Joaquin Valley Building at San Diego

BY ALLEN HENRY WRIGHT

There is no doubt that many a blushing bride, on her wedding-trip, will declare the Panama-California Exposition, which opened in San Diego, California, on New Year's Day, "just too sweet for any thing," for it has many features which appeal to the romantic as well as the artistic, to the utilitarian as well as the amusing and interesting.

To beemen in particular, and to all those connected in any way with the great industry of making and marketing honey, there will be much of interest to be found in the building erected and filled by the eight counties of the San Joaquin Valley.

Here will be found a honey display, occupying a space about fifteen feet high by ten feet wide. At the top are the letters ALFALFA HONEY, each letter of which was used as a separate box, filled with artificial comb, and then placed in a hive, the bees doing the rest of the work of filling the comb with honey.

On either side of the display are panels containing pressed wild flowers, with bees above and about the blossoms. Combs of honey and jars of strained honey fill the spaces in the center and about the edges. All in all, the exhibit is one of the most pleasing and novel in the building, which contains hundreds of unique features.



San Joaquin Valley building at the Panama-California exposition, San Diego.

Elsewhere on the exposition grounds there is an exhibit of all kinds of equipment for the bee-culturist, including the latest devices and paraphernalia for conducting the business on a paying scale.

San Diego, Cal.

THE OLD FOLK IN THE BEE HOME

BY J. E. JOHNSON

Since the writer of this article had a little success in beekeeping, his neighbors have become interested; and now within five miles of the original yard that started the fever there are as many as one thousand colonies. These friendly would-be beekeepers often drop in and talk shop. They are very much interested in fixtures. They talk hives and frames and smokers and supply-dealers, but there is not much disposition to talk bees. These good friends have been reminded time and again that success is not tied up in the subject of fixtures, great as is the importance of having fixtures right and standard.

Recently a new man in the bee business spent a whole week going over his yard examining his colonies and feeding nearly every one. He realizes now that this work should have been done last fall; but the bees had to be fed or would die, and so he kept on feeding with the temperature down to and below freezing.

How few beekeepers stop to think that all the bees are now old, and living in their declining years! Last October they were strong and young, able to do a woman's work, but now they are getting old and feeble. Many of them have gray hairs, some are crippled up with the rheumatism, and hardly able to get about. But the family must be cared for. Water must be brought, and the home must be kept warm. And all this work must be done by these old people in the bee home. There is no young person about to hustle around early and do the roughest work.

With this idea in mind, how important it is to treat these old people in a way to make it as easy as possible on them! For the next few weeks they face the hardest battle of life. If they can hold together until the warm days come, then soon they will have help, but all the work must now fall upon their old shoulders.

If this idea could be well drilled into the young beekeeper's head he would not feed too much raw syrup to the old bees and make them work it over, and store it again in their combs. He would not require them to carry water half a mile. He would not ask them to stay in a hive where the roof was leaky, and air currents constantly cooling off the home.

Mt. Airy, N. C.

HOW FAR DO BEES FLY?

BY J. A. HEBERLE, B. S.

Much has been written about this subject. Opinions differ greatly, as might be expected, because the solution can be only an approximation. The distance varies with the season, the time of day, the temperature, and also with the plants that supply the nectar and pollen. It is influenced by the configuration of the surrounding country.

The editor of the *Western Honey Bee* says: "How far bees fly and store honey to a profit depends on two things: First, the plant they are to get it from; second, whether or not intervening plants have led the bees to the field." [G. M. Doolittle has said the same.—H.] He has seen the bees work on mesquite where the nearest bushes were a mile and a half, and the bulk of the yard seemed to be going about two miles, with the result that scales under an average hive showed nine pounds gain. [That would be a record around here.—H.] He further said bees will make a good gain from a good field of alfalfa a mile distant, and he would count on a good deal of surplus from one and a half miles. Three years ago one of his neighbors had a yard two miles from the only orchard that was sprayed, and the bees carried enough arsenate of lead from the fruit-bloom at that distance to kill some of the colonies outright.

Geo. L. Emerson, in the *Western Honey Bee,* says: "For some years we have had our apiary No. 8 in a location that is over six miles from an orange-orchard, but these bees seem to gather orange honey as fast as bees nearer the trees when the weather is warm and favorable."

J. D. Bixby, on the same subject, said that he knows of an apiary in Iowa which is six miles from the nearest basswood-tree, and eight miles from any larger range of basswood. In any year that the basswood has yielded nectar, this yard has stored thousands of pounds of basswood honey. His personal knowledge of this yard extends over 45 years. He observed last year that numbers of golden Italians were working on white sage on a 1500-foot hilltop four miles from the nearest yard containing such stock.

Mr. Goeken, who read my translation of these items in which they say that bees would fly for orange and basswood nectar six to eight miles, writes in the *Bw. Ctrblatt* that he doubts that any bees in Germany —the blacks, Carniolans, or Italians, would fly that far for nectar, and added that, if these distances (six to eight miles) are actually made by the bees it would be well to introduce them in Germany.

In his extended practice he found that, if bees were moved, during a honey-flow, a distance of one and a half to two miles, they would not fly back to the old stand.

According to his observations bees would gather nectar at a distance of 1¼ to 1½ miles in any direction unless they are led further by an extended field of nectar-yielding plants. He asks any German beekeeper who has observed that bees gather nectar at such great distances as above cited to have such observations published.

A month later Heinrich Theen writes in the same journal that, generally speaking, he agrees with Goeken that bees usually do not forage much over 1¼ to 1½ miles distant.

About seventeen years ago he was the only beekeeper who had Italians in that neighborhood. Seldom could he find his yellow bees further than 1⅞ miles. However, his bees would visit a rape-field when the weather was real fine, at a distance of 2½ to 3 miles.

At a distance of 1⅞ miles from his apiary there is a heath of some 500 acres. In a dry season considerable honey is gathered by the bees near this field, while his bees visit the field of heather very little. He can find but a few cells of this honey in his hives.

BEES FLY FIVE MILES OVER WATER.

Mr. Theen states further, that on his side of the water the farmers have quit planting rape, but on the other (Danish) side there are still large fields of rape. From an elevated place some little distance from his side of the shore the rape-fields when in bloom can be clearly seen. At a village a quarter of a mile from the shore there are several small apiaries; and when the rape-fields yield nectar the bees fly in large numbers across the water—a distance of five miles. A few of the bees succeed in returning with a load, but the most find their death in the cold water. The fishers on the water's edge say that bees often take a rest on their boats when they pass the line of flight of the bees. Usually the bees fly very low on their return across the water, and a gust of wind drowns them by the hundreds. If the wind blows from the opposite side, lots of dead bees are washed ashore. He thinks the bees are misjudging the distance across the water, else they

would not undertake a trip which in windy weather means sure death to them.

So far as I can see from the writings of various authors it was generally believed that bees would cross only short distances over water; but here is a case that shows that assumptions, though long believed, may be erroneous. By a long-distance flight to the source of nectar the loss of time consumed by the flight is not of so much importance as the wearing-out of the bees and the losses incident to long-distance flying.

Kempten, Bavaria, Germany.

A HOUSE-APIARY AND A SCHEME FOR KEEPING ANTS AWAY FROM THE BUILDING

BY E. R. ROOT

When we stopped off at Delray to visit Charley Repp, where the Repp brothers, of apple-growing fame, have their Florida farm on which they grow cucumbers by the carload I asked if there were any bees in the vicinity, and was told there was a man who had quite a house-apiary not a great distance away. Of course I said I should like to see it, and, sure enough, he had quite a building. I took a picture of it as shown in Fig. 1.

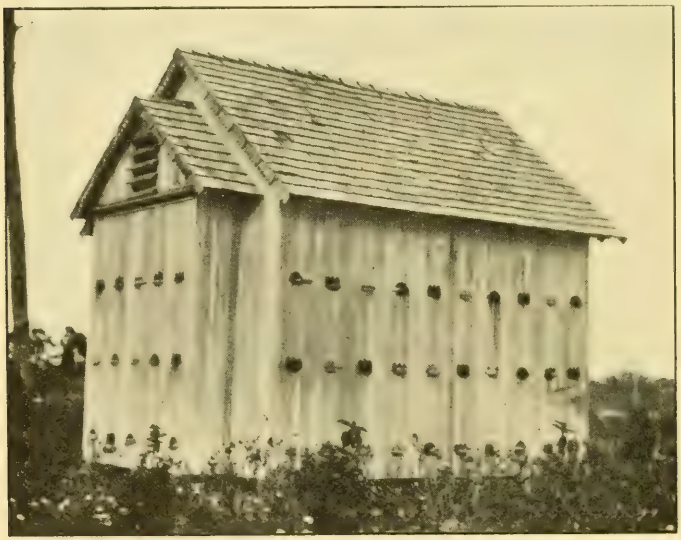


FIG. 1.—George Hoeness' house-apiary near Delray, Florida.

No one seemed to know very much about the owner, except that his name was George Hoeness. He owned a couple of town lots, all the bees there, and had been gone for two years. He used a sort of long German frame, very deep, and each colony was in a compartment by itself. Some of them were dead, but others were very much alive, as we found when we tried to "investigate."

But the thing that interested me particularly was a way to provide against the depredations of ants, which are very troublesome in those parts. The accompanying illustration, Fig. 2, will show one of the corner foundations surrounded by a concrete box to hold water. Every time it rains these boxes get filled with water, so, of course, the ants do not have very much chance to get into the building.

Not much was known of this Mr. Hoeness, and it was thought he had gone to Michigan. His nearest neighbor is Mr. J. W. Lamb, and possibly he may know where he is by this time if he has not returned.

Of course bees are very necessary for growing cucumbers. No bees, no cucumbers. That has been proven over and over again.

ARKANSAS RETROSPECTS AND PROSPECTS

BY C. W. RIGGS

Last year was one of the worst known in the history of this section, and bees as a general thing did not make honey enough to winter. I fed from the outside along in November and December; and on January 11, as all the bees were flying nicely, I went through my yard of twenty-six colonies and equalized the stores. I had five or six small nuclei that I thought it hardly possible to get through the winter, but to-

day (Feb. 16) all are flying, and upon examination seem to be doing nicely.

The maples are in bloom, and each colony (and nucleus as well) is as busy as can be, starting in the spring honey-gathering. We do not need to pack the hives in this section of the country, as we have only from four to ten weeks with, say, an average of six or seven weeks of any thing that might be called winter. But only a few days of this is actual winter as known in the North.

Arkansas, generally speaking, is a good state for bees. In fact, the woods are full of them—more in the woods than in yards; but with the advent of sweet clover, which is coming into its own, I think she may take place as one of the leading honey states at no distant day.

Greenland, Ark.

TAKING BEES FROM A CHURCH

BY W. J. WOOLLEY, JR.

The village of Sedgeberrow is an old-time hamlet of about 300 inhabitants. It lies under the shadow of the Cotswold Hills, and is principally given over to farming and gardening. The church is a strong stone-built edifice with stone roof (not tiles).

Between the ceiling and the roof seven colonies of bees had built their homes. The old inhabitants stated that they had been there for 30 years for certain, and perhaps more. But the vicar of the church let them go on the same old way till this year, when they began to be a little more venturesome, and one day they swarmed while the service was being held, and settled inside the church. So the vicar decided that they all should be ejected from the holy place, pack and baggage.



FIG. 2.—Hoeness' scheme to prevent ants from getting into the house-apiary.

He gave the order to a local firm of builders to clear the bees, honey, and comb from the building. They sent two bricklayers over from Evesham to investigate and eject the bees if possible. The men started bravely, and began to take the stone roof off the place where the bees were seen to fly from; but in less than half an hour they had to beat a hasty retreat down the ladders to the ground.

After a conflab they decided to leave the work and get some one else to do it. So they decided to come to the local expert and ask me if I would undertake the job for them. After visiting the church I offered to do the work of clearing the bees and honey out if I had the greater part of the honey and the bees. As they could not do it themselves they agreed.

The roof is forty feet from the ground, and the bees had built their home at the junction of the wall and the roof between the rafters, and between the ceiling and roof. After a good smoking, with the help of the bricklayers I proceeded to take the stone roof off over the nest, and found a very large nest in the form of a triangle. The longest combs were over three feet long, and the nest was a yard wide at the widest part. The majority of the combs were as black as ink, and were built like the combs in a skep or box. Some were straight, some crooked, and some braced together in all sorts of ways. After two days' work we three cleared the bees and honey out from the building. I did the work with the two bricklayers waiting on me, and carrying the

stones and the honey down the ladder to the bottom. It caused quite a commotion in the village, most of the inhabitants coming to get a look from a respectable distance. After we had finished we found we had about 260 lbs. of honey besides the bees. My share of the loot was 160 lbs. of honey; and after straining it I had 10 lbs. of wax. The other 100 lbs. was divided between the two bricklayers and the foreman, besides sweetening the boys who used to come and say, "Master, give us a bit of honey, please."

But what I noticed principally was that, although the combs were in some cases so old, there was no sign of foul brood or any other disease. The bees were very strong lots. Of course I got my share of stings on my hands and arms, but that did not matter. I have had so many that my system has become used to stings. The other men got off very light indeed. Of course we all wore veils, which I provided. It took the bricklayers two more days' work to replace the roof after we had got the bees and honey out. It turned out a very pleasant and profitable work for me, and I should be glad of a few more jobs like it.

Evesham, Worcestershire, Eng.

MAKING GOOD WITH NINE COLONIES

BY H. N. WAGNER

The way I got into the bee business was very simple. A swarm had taken up its home in the corner of our house. So long as the bees were willing to attend strictly to their business they were left alone; but they took a notion that the whole house and yard was theirs. My wife and little boys were stung so often that at last they simply forced the man of the house to act. The bees had to be taken out. I read an advertisement in the local paper that Stoneman, the beeman, would take bees from houses. I found him a rather meek sort of fellow. In talking with him I discovered that he taught a class in the Methodist Sunday-school. This made me especially anxious to secure his services in getting out the bees, for I had often heard when a boy that bees will not sting a truthful or an honest man. I wanted to prove this old saying. I knew a teacher in a Methodist Sunday-school must be honest, and reasonably truthful.

On the day appointed, John with his tools and hives came out to do the work. He was to take out the bees and hive them, and I was to pay at the rate of $5.00 a day. I was to help.

After the side of the house was opened, I stood back and watched John. I noticed that the bees were stinging him. I watched his lips, but I did not detect by them that he was swearing "under his breath." I hated to doubt the old saying, nor did I want to doubt John's honesty. I had some doubt about the truth of the saying within a few minutes, as I took a hand in the work and received several stings. I believe most old sayings are not quite true.

When we finished the day's work we had four colonies in hives. We took two from a neighbor's house; and, a few days before, a stray swarm came along and settled on a sage-bush which I had put in a box.

I now felt that I had been born into the beekeeper's guild. John had gone home with a check for his labor and hives, and the tools which he said I needed. I noticed when he left he seemed to have an expression upon his face which said, "I have my pay for my work. You will get your experience as the days pass."

The bees were put into hives about the 10th of July. In October I had a surplus in large extracting-frames of almost 500 lbs. which I sold to people for ten cents a pound in the frames. After keeping honey for our own use I sold a little over $40 worth to my friends. I had enjoyed taking care of the bees; and when the wife saw the money coming in she felt somewhat more charitable toward them. But they had stung her so much she was very sick from the effects of the stings, and has not learned to love them. She even claims that I, like all beemen, have gone a little "off my base."

Since I did not know any thing about wintering bees I read some of the methods given in the bee literature. I just packed them away in leaves, leaving part of the front of the hive exposed. When spring came I found one of my four dead. I opened the second season with three strong colonies. I made an increase of four. About the middle of the summer I saw John, my old friend who always has an eye to business. He knew I had a bad case of bee-fever. In his travels he had picked up nine boxes with a few bees in each box. He said, "I will sell you those nine colonies for $11. I bit quickly. I took them home, and only six of them had any brood. I had also bought from my beeman ten ten-frame

hives and transferred the bees from the boxes into the ten-frame hives, making six colonies of them. When fall came they had filled the brood-chamber, and some had made some surplus. When I took off my honey in the fall I had a market for all that I had in the large extracting-frames. I found I had about 1200 lbs., for which I received ten cents a pound. I now had thirteen to winter, and successfully tried the same plan as the year before.

In May, while I was away from home for several weeks, there was much cold wet weather; and when I came back I found that four of the colonies had been robbed. There remained only a few bees in each hive. I placed them all in one hive and gave them a frame of larvæ. They went to work and raised a queen; and while they produced no surplus they had plenty for winter. By fall I had seventeen colonies.

A NOVEL SCHEME FOR PRODUCING COMB HONEY.

The past summer I produced nothing but comb honey in sections. My friend the beeman told me that I would have trouble in getting the bees to work in sections, and that I had better stay by my old method. But I had already ordered my supplies for running for comb honey. John said if I made twenty-five cases I would do well. After my robbing experience I had nine colonies. I knew that any sensible bee would go into an extracting-super when the super is filled with full sheets of foundation. I said, "Why not fill the section-holders with full sheets of foundation?" I did. Then I took my sections, ripping them to make two sections of one. Then when the section-holders were about half filled with drawn comb I took the press which I had made, placed four of the narrow sections I had ripped on each side of the section-holder, pressed them down solid, and then put the section-holder back into the super to await results. The bees seemed to be struck with the scheme, and just went at it and filled them. I tried this upon each colony, and without exception they went into the super and worked fine.

When I took the sections off there was a line where the two halves of the section met. Over this I placed a strip of white paper, and I had a strong and clean section. I used this scheme to get the bees started to work. I had no extracting to do.

I had an order for 500 lbs. of honey in large frames. I produced this and almost 1300 finished sections from my little yard of nine, spring count, after four had been robbed out.

So much for my bee trials and joys. I still have the fever.

Blackfoot, Idaho.

EASTERN NEW YORK BEEKEEPERS' ASSOCIATION

BY S. DAVENPORT

The seventh annual convention of the Eastern New York Beekeepers' Association was held at the City Hall, Albany, Dec. 30, 1914. The unfavorable season for honey production during the past year evidently had a depressing influence on the beekeepers of this part of the state, as was indicated by the slim attendance at this meeting. The association has never before had so few members in attendance; but those who were present were all live wires, and what was lacking in numbers was amply made up in the very interesting sessions.

After the report of the treasurer, showing a handsome balance in the treasury, the president made his report as delegate to the joint convention of horticulturists and beekeepers held at Syracuse during fair week. The president also gave a long and interesting report of the annual convention of the State Association of Beekeepers' Societies.

Charles Stewart, state bee inspector, at the suggestion of the president, repeated his remarks given at the annual meeting of the State Association on the subject of feeding back and feeders.

After some remarks by the secretary in appreciation of the several persons mentioned, who have shown much interest in the association and its objects, they were made honorary members as follows: Chas. Stewart, state bee inspector, Sammonsville, N. Y.; Dr. G. G. Atwood, horticulturist of the State Agricultural Department, Albany, N. Y.; Dr. Burton N. Gates, apiarian professor at the Massachusetts Agricultural College, Amherst, Mass.; Rev. I. V. Lobdell, Middleport, N. Y.; Audubon Johnson, Simi, Cal. The three last-mentioned gentlemen were formerly active and valued members of the asosciation.

A vote of thanks was given to the State Agricultural Department for the assistance of the state bee inspectors given to the beekeeping industry by their work and their attendance at the conventions of the beekeepers of the state.

The subject of advertising honey to create

an increased demand for it was considered, but no action was taken.

A committee nominated the following members for a board of officers, all of whom were unanimously elected. President, W. D. Wright, Altamont; first vice-president, Charles N. Hays, Brookview; second vice-president, Irving O. Cross, Hoosack Falls; secretary, S. Davenport, Indian Fields; treasurer, I. J. Stringham, New York.

A summer field-day meet and demonstration was suggested, and received much favorable consideration. The president and I. J. Stringham were elected a committee to superintend the matter and make it a success. The meet will be held at the home apiary of the president at Altamont, some time in July.

Two interesting letters from Audubon Johnson, Simi, Cal., were read by the secretary, and received much appreciation.

President W. D. Wright and W. D. West were elected delegates to attend the next annual convention of the State Association.

Indian Fields, N. Y.

DIVIDING COLONIES BEFORE THE SURPLUS HONEY-FLOW

BY R. F. HOLTERMANN

When we undertake to combat an idea we ought to make quite sure that the man we connect with that idea holds it, else we are apt to find that we are aiming at an imaginary target.

I want to endorse fully what Dr. Miller has stated in GLEANINGS in effect, that, with a white or alsike clover-flow prospect, it is unwise to divide colonies before that flow. For quite a number of years, now in the distant past, I had the management of a bee-supply business; and let me say in an aside that my experience in that line, knowing what the net profits were from year to year, has made me quite willing to let the supply-dealer have what he can make out of that business; but during that experience, and since, I have seen that one of the rocks upon which many a beginner in the bee-keeping business makes shipwreck is the intense desire for increase. It is like the case of the hen to which the owner gave about thirty eggs to sit on. When asked why he gave her so many he said, "I just wanted to see the old fool spread herself." I am not relating this story for fun nor with the expectation that the readers of GLEANINGS have not heard it before, but because it is applicable to the subject in hand. We as beginners want to spread ourselves and we often do it to an extent that we undertake more than we are able to bring to a successful issue.

There may be occasions when increase is desirable, sacrificing the honey crop; but as a rule, the first few years at least, it is better to make a very moderate increase and secure a honey crop.

On page 137, Feb. 15, Dr. Miller points out the difference between expecting a honey-flow from which one can reasonably expect a surplus, beginning May 27, and when such a flow begins 27 days later. He stated that he had known the white-clover harvest to be over by July 4. I too have had such an experience. I venture to say that many a beekeeper has had no surplus honey, or very little, from one colony when he might have had 50 lbs. to the colony if these colonies had been in prime condition at the beginning of the honey-flow. I know what I am talking about, because I have had personal experience along that line. Who, unless he has equalized colonies, or unless he has a very limited number of colonies, has not had in the apiary some which have given about one superful of honey before or by the time another needed a super at all? In such a case as Dr. Miller states, if the flow should be short, or if it should cease at the time specified above, one can not see the great difference in yield. It is all very well for people to talk about having every colony practically the same. In rare instances it may be so; but more people judge their own with partial eyes, and I fancy I would require a microscope to find the percentage having the apiary in such condition.

My practice, so far as the magnitude of my operations will allow, is to build up the bees so that they will occupy with brood, bees, pollen, and honey the twelve-frame brood-chamber. I then take out of the strongest colonies several combs of brood as nearly mature as I can find it, and give these to colonies which will not quite reach that stage by the time the surplus flow comes on. This practically makes them full colonies also, and so in this way I get the largest number of full colonies for surplus honey. Every bee emerging from the transferred combs is in a full worker colony, and the brood developed in the frames put into the strong colonies will be much

greater than that which would have developed in the weaker colonies.

In the place of the combs of brood taken out of the full colonies I insert frames with foundation unless I have all the comb I want, for no better place could be found for this work. If I put in drawn comb I seek to use that which has been used in the brood-chambers.

Let me say here that there are, perhaps, many beekeepers who put combs into brood-chambers built on sheets of foundation which have absolutely no business in a brood-chamber. If the foundation stretches, the comb built thereon is unsuitable for brood-rearing. The queen dislikes it, and it is a hindrance to the rapid development of brood. If comb has been in the super with wide spacing, as is generally the case, making it a deep cell, it is objectionable, and the bees have to remove a portion of the side wall before it is useful for brood. Such a comb should be thinned down with a sharp knife before using in a brood-chamber.

It is a very difficult problem with me what to do in case the brood-chamber is crowded and a good honey-flow is on. Generally when a comb of brood is taken out and we insert an empty comb the bees are more than likely to fill it with honey; and where that is recommended I sometimes wonder if the beekeeper has tried it very much; or, if so, whether he had time to note the result; or if the colony was really a strong one, or if the honey-flow was really a good one. This may be an honest case where the nature of the honey-flow may make a difference in results.

After trying the Alexander method of increase, if by that is meant putting a weak colony on top of a strong one, I have not found that method as advantageous as the way I have described. It appears to me that the weak colony must be built up at the expense of the stronger; and until the stronger has more bees, heat, working force, and the queen has reached her limit in egg production, I see no gain in giving them the added responsibility. P. C. Chadwick well states, page 139, "I infer that Dr. Miller believes in one large force of bees to a hive, rather than a slightly greater number divided into two hives, and in this I believe he is entirely right." So say I.

For years I had the bees on clover ground during the early part of the summer, and about Aug. 1 I moved them to buckwheat. I did not then consider it wise to risk a portion of the white-honey crop with the object of being the gainer on the dark flow. There may not be any dark honey, and it is worth less per pound.

Increasing during the honey-flow, or before a prospective flow, is in my estimation unwise unless one has the practical experience to warrant keeping more bees and if he cannot purchase them at prevailing prices.

Brantford, Canada.

HOW I IMBED WIRES IN FOUNDATION

BY A. W. SMITH

Perhaps some might like the way I fasten foundation in wired frames. It seems that Miss Wilson has been using a somewhat similar method, but I had not the slightest idea she or any one else imbedded wire this way. I worked out the problem alone four or five years ago, and with the help of a boy at fifty cents a day I securely fastened 150 pounds of medium brood foundation in wired frames in ten hours, and found this plan better than other methods I had used.

Our method is, in brief, as follows: Make a coverless box 4 inches deep, about 8 inches longer than the top-bar of the frames, and ⅛ inch wider than the outside width of the frame. On the outside of the box at the upper edges fasten thin strips about ⅜ inch higher than the sides of the box, these to prevent the frame from moving sidewise when pushed along on the edges of the box. Then secure four little spirit-lamps holding perhaps two ounces of wood alcohol each, and trim their round wicks so they come to a point.

Fill and place the lamps near the center of the box in such a position that the blaze nearly touches the wire of the frames when slid along on the edge of the box. Pressing a piece of pasteboard against a sheet of foundation placed on the wires in the frames, slide the whole arrangement over the lamp blaze and see how quickly and neatly the four wires have been imbedded.

I do not use groove and wedge top-bars, and have several reasons why I would not use them as a gift. I fasten the foundation in the top-bar with melted wax, holding the frame nearly perpendicular so that the hot wax will not melt through the foundation.

Birmingham, Mich.

BEGINNING WITH BEES HALF A CENTURY AGO

BY WILLIAM P. HENDERSON

Before I arrived at manhood I dreamed I would have a home of my own, with plenty of milk and honey—two articles of diet I was fond of. So, soon after my marriage a small place was purchased; then a cow and calf, and a hive of bees. But knowing nothing about bees, except that they make honey, and can sting, I learned from the farmer of whom a hive of bees was purchased, that at a certain time of the year, "corn-tasseling" time, after dark I was to tie a bed-sheet around the bottom of the hive to make a bag, pry off the top of the gum, and cut out the honey down to the cross-sticks in the middle of the hive, having previously prepared rolls of old cotton rags with which to smoke the bees off the comb.

About this time, which was more than fifty years ago, in looking over a catalog of books for sale my eyes fell upon "The Mysteries of Beekeeping Explained" by M. Quinby, St. Johnsville, N. Y. Up to that time, if my memory serves me, I was ignorant of any literature on the subject of the management of bees.

"Mysteries of Beekeeping Explained"—that's what I want to learn. It is all a mystery to me, except what was told me by some old bee-owners whose advice and theories, as I afterward learned, were upset by Mr. Quinby.

The book was ordered, received, read and reread, and frequently referred to afterward for directions in manipulating my bees.

The work of Mr. Huish, F. R. S., an English author (full of errors), and other books on bees were afterward purchased; but in a practical way they were not the equal of that of Mr. Quinby's.

From that time on I went far ahead of the old timers in the production of honey and growth in numbers of my colonies.

Tampa, Fla.

[In the late 70's and early 80's, Mr. W. P. Henderson, then of Murfreesboro, Tenn., was one of the most prominent queen-breeders of the country, and, incidentally, a spicy writer along his line of work. He made one of the best collections of old bee-books ever known in America, being second, probably, only to that of Thomas Wm. Cowan in London. These books were transferred to us in 1892, and were reviewed in detail the following year. Any thing from his pen is worth reading.—ED.]

A. I. ROOT

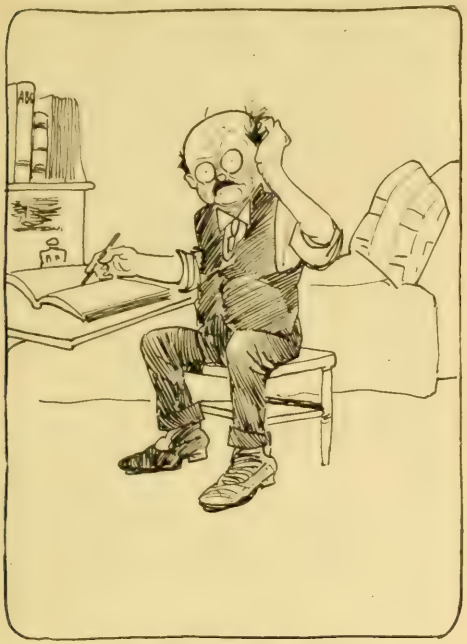
BY GRACE ALLEN

Alone I sing so slight a song, I'm like a single bee,
Her humming all unnoticed in the blossoms of the tree;
But when the petals quiver and the fragrant air is stirred
By murmurs of a thousand bees, ah! then the song is heard.
So, beemen near and beemen far, come swell my simple song,
And let it surge from sea to sea and echo true and long:
"The world will be a fairer, cleaner, better place for all
When more men live like A. I. Root and let their souls grow tall."

Through all his years he's stood for right, for honesty and truth,
And see him now, in autumn time, as eager as a youth
To fight the evils of to-day, and in this pulsing Now
To meet new issues and new hopes with forward-fronting brow.
So, beemen near and beemen far, come join in my refrain,
And sweep the hearty echoes over mountain-top and plain:
"The world will be more like the place to which our dreams have clung
When men grow old like A. I. Root by simply staying young."

We love his little stories and the happy life they mean,
That first stray swarm, the windmill days, the chickens and dasheen,
The faith and works, the lesson learned, the earnest, hopeful prayer,
And how he helped one brother here, another brother there.
So join with me, O beefolk all, and let the echoes ring—
We're standing upright through the land as from our hearts we sing:
"The world is finer, sweeter, and God's Kingdom seems more near,
Because a man named A. I. Root is living with us here."

Heads of Grain from Different Fields



The Backlot Buzzer

Sometimes it's a question which has the best-laid plans for the coming season—the boss or the bees themselves.

Has Never Found Foul Brood in Trees

I have been a bee-hunter ever since I was large enough to look up a tree, and my father was one before me. I always find from five to ten trees every year, and I have wonderd why bees in a tree never have foul brood.

Last summer I helped to cut six trees on Fort Lewis Mountain. Making a good examination for foul brood I found every bee perfectly healthy, and the combs showed no signs of a bad cell. The reason that I am giving special attention to foul brood is that it cleaned up an apiary of a hundred colonies one or two miles from the mountain, and several absconding swarms have left this yard.

Just as with Ernest Webb, page 950, Dec. 1, it seems to me that when a swarm leaves a diseased hive and goes to the tree it would have the disease just the same as if it were in a hive. But the only foul thing I ever saw in a bee-tree was a blacksnake 6 feet 9 inches long. Father and I cut a bee-tree a year ago last summer. We found a snake among the bees, and there was not a single bit of honey in the comb. The bees seemed to have made friends with the snake, and did not try to sting it at all. The combs were five feet long.

Roanoke, Va. HENRY S. BOHON.

[We see no reason why a colony in a tree might not have diseased brood. In fact, if we are not mistaken disease has already been found in trees.—ED.]

Cyaniding the Ants

I was somewhat amused at the article by E. S. Miles, entitled "Fighting the Ant Invader," and wondered that a man should use a "barrel of coal oil" to kill a few ants when for half a dollar he could kill all the ants on a ten-acre field. Here is a simple remedy:

Take one pound of cyanide of potassium and dissolve it in five gallons of cold water. Take a small can and go to each mound where the ants are, and pour about two or three tablespoonfuls of the liquor in each hole. In about four or five days, when a few more eggs hatch, repeat the operation again. It's good-by to the ants. Should any more eggs hatch, repeat the dose a third time. I have had some trouble along the same line, and find this remedy will overcome the pests completely. Strict care should be exercised in handling this remedy, as it is very poisonous.

Prescott, Ariz. DAVID MILLER.

Too Many Supers Hinder the Introduction of a Queen

D. E. Lhommedieu is wrong on page 125, Feb. 1, in regard to the Miller method of introducing queens. Mr. Miller said that queens should not be introduced until the colony has quieted down from the overhauling in removing the old queen. This takes from four to six hours; and to try to introduce before is to invite disaster. Queens can be introduced from that time until they may have laying workers.

I think the cause of Dr. Miller's failure in introducing was the number of supers he had. If two or three supers are on the hive, it is impossible to get the whole hive full of smoke in blowing it in at the entrance. One or two puffs should be blown between the supers, and no more should be on than the bees can fill completely so they will not be driven up out of the brood-chamber.

Grosvenordale, Ct. ERNEST RYANT.

How to Avoid Loss through Aster Honey

I can testify from experience to the truth of the statement, page 136, February 15, that aster honey gives bees dysentery. This locality is full of aster flowers, mostly white and brown, and they keep on blooming until the frosts kill them. They yield quite a quantity of honey.

When, thirty years ago, I began keeping bees, studying the A B C and subscribing for GLEANINGS, I followed their advice closely. I packed my bees for winter never later than the 15th or 20th of September. About that time the aster began to bloom; and as a result my bees had their hives full of aster honey, and most of it was uncapped for winter. I lost many, mostly by dysentery—sometimes 50 or 60 per cent.

I finally discovered the trouble, and now I never pack my bees until the aster honey-flow is over. Last fall I did not have a hive packed before November 1, and a year ago I was just done with it when the blizzard set in on the 9th of November. My aim is to get as much aster honey out of the hive as I possibly can, and as a result my winter losses are very small.

Port Clinton, O. JULIUS JOHANNSEN.

Who Cares What a Section Weighs?

In seasonable years like the last, we can produce a very fine grade of comb honey here, mostly from wild prairie flowers, mesquite, and catclaw; but I think the government requirement as to having the weight stamped on each section is too severe to allow either me or any one else in this country engaging very exclusively in the production of comb honey. A comb of honey should sell on its looks,

like a watermelon or orange, or any kind of individual fruit or luxury, not by its weight. There is not one purchaser in 500 who cares whether the comb of honey he buys weighs 14 or 16 oz. so long as it appeals to his fancy in looks and flavor; so, why should we beekeepers be hampered with such an unreasonable ruling when the public can see what they are buying before they buy it. Unless something is done to have this regulation withdrawn I fear that comb honey will be even a scarcer luxury on the market of 1916 than it is now.

Clairemont, Texas. BASIL C. CAIRNS.

Few Swarmed Out After All

I see that Dr. Miller says, page 137, Feb. 15, as to my plan what to do when a swarm issues, that he would expect them to swarm again in twenty-four hours. I treated twenty-seven colonies that way in 1914, killing cells and taking four or five frames of brood, and only two swarmed out the next day. I had fifty queen-cells, although we had a rather poor season in 1914.

The colonies treated in this way all gave some surplus, from 35 to 50 sections of comb honey, while the swarms that were hived on full sheets of foundation gave ten to twenty sections, and some not any. In using this plan I think it best to put the brood in one side, as they will work in the sections sooner.

I am going to use this plan in 1915, and will report what success I have.

Juda, Wis. JAMES G. BENSON.

Bees Working on Red Clover

My bees are common hybrids, but last summer they worked on the second crop of red clover. While they stored but little or no honey, yet the hives increased in weight very much during the time red clover was in bloom; and if it had not been for red clover we would have had to feed in midsummer, as there was no white-clover honey, and the hives were very light August 1.

Some 25 years ago, when first coming on this farm I bought a colony of bees which died the first winter. I let the hive remain on its stand, and the second summer a stray swarm took possession, and my present stock of bees is from this stray swarm. I suppose that my bees are not better than hybrids at most, for, so far as I know, we have only one man for many miles around who has ever introduced Italian queens, and he introduced only one or two at most. At different times I have noticed my bees on red clover; but not up till last year did they get much nectar. Last year the hives were very light when the second crop of red clover began to bloom. I noticed that the bees were hustling out early in the morning, and working all day during August, in spite of the fact that we were having a very severe drouth. At first I could not tell the source from which they were gathering their stores; but I finally traced them to the red-clover fields, where I found many of them working on the red-clover bloom. And I know further that the hives increased very materially in weight during this August drouth while the bees were working on the red clover. We had good July rains that gave the second crop of red clover a good start, so that we had a good growth of stalk and head. It was very hot and dry in August when the clover was blooming.

Mendon, Mo., Nov. 2. NATHAN CLAIR.

South Winds Diminish the Honey Crop

Much is said about the shortage in the honey crop last year, and the blame appears to be laid to dry weather. If you have ever rustled sap in a sugar-camp you have learned that south winds dry the flow of sap. I have noticed that, when the prevailing winds are southerly, the bees gather but little nectar. I have noticed this for a number of years. Here in northern-central Iowa the winds were mostly from a southern direction last summer, and our crop of honey was light. In 1913 it was almost as dry, but we had very little south wind, and therefore a bounteous crop of nectar.

Moorland, Iowa, Oct. 5. UNCLE JOE.

Aster Honey has Done No Harm So Far

Thinking perhaps you would like to hear how bees are wintering in northern Michigan, where the mercury often drops down to 40 below, I will say I placed 59 colonies into winter quarters (in cases out of doors), and to-day, Feb. 22, every colony took a nice flight, and seems as strong in bees as when placed away. I tell you it made me feel pretty good to see them out so nice. Some of them had flown before, where they were back in the brush, and were more favored with the sun.

I was afraid of aster honey, as much of it was not sealed.

Mio, Mich. JOHN A. STEVENS.

White Clover Poor because of Drouth Last Year

Honey prospects in this locality are very poor for this season. In my inspection last year I traveled all over the western part of this state, and found very little white clover started, on account of dry weather. Some places have considerable sweet clover, and there will be some honey-flow in localities along rivers; but generally the prospects are poor.

Most of the bees I inspected last season were short of stores, and weak in bees; and unless they were fed and protected there is sure to be a heavy winter loss.

Altona, Ill., Feb. 28. W. B. MOORE.

The Farmer a Beekeeper

As to farmers keeping bees, p. 81, Jan. 15, I should say if there are none of the contagious diseases in the neighborhood every farmer should by all means have one or more stands. They require but little care, and are a diversion and added interest to him, and an education to the children, besides being the source of a delightful addition to the bill of fare of the home.

Where the contagious bee diseases are prevalent, however, I consider it utterly useless if not a crime against neighboring beekeepers, unless the farmer intends to turn beekeeper, or have the bees looked after by some one who is a beekeeper.

Carthage, Mo. B. C. AUTEN.

Oregon Basks in Sunshine

Bees are now working on chickweed, crocus, and pussy willows when the weather permits. People are playing croquet out of doors. There has been no snow this winter, and the lowest temperature was 15 degrees. A brood of nine chicks, hatched about Feb. 1, have spent the greater part of the time out of doors, and all are alive and happy, notwithstanding Oregon is "dry."

Forest Grove, Ore., March 2. S. T. WALKER.

Reports Successful Wintering

Bees have wintered well, and are in excellent condition at this time. A heavy aster flow last fall made plenty of stores for winter, and spring feeding will be unnecessary. Although it is early to predict, the clovers do not look promising here.

Jacobsburg, O., Mar. 2. A. W. MCMASTER.

A. I. Root

OUR HOMES

Editor

Choose ye this day whom ye will serve.—JOSH. 44:15.

His sons made themselves vile, and he restrained them not.—I. SAM. 0:13.

Honor thy father and mother, which is the first commandment with promise; that it may be well with thee, and that thou mayest live long in the earth.—EPH. 6:2, 3.

I was brought up by godly parents, and attended Sunday-school regularly until I was toward a dozen years old. We lived in a small town; and when I approached my teens I got in with a crowd that made light of religion, and soon began to think I was getting *too old* to keep on with the children, notwithstanding the efforts of my parents, especially my mother. I was born on a farm in the woods near my present home; but when I was four years old father was persuaded to abandon the farm, move into town, and work at his trade. He always had a longing for the farm, however; and after about eight years in the town (see p. 167, Feb. 15) he moved back to the old farm. It just now occurs to me that very likely he decided the farm would be a *better* place for his two boys approaching manhood. As we were about 2½ miles from church, one of his first moves was to get a six-seated carriage in order that he might take the whole family to "meeting" regularly every Sunday.

It happened, however, in this case, as in most others, that there were sabbath-breaking boys in the country as well as in the village, and my brother and I preferred rambling about with these new acquaintances rather than going to church. Father expostulated several times; but it seems we gave little heed, and, I am sorry to say, I cannot remember I had been to church with the family a single time until I was close to sixteen.

One Sunday morning, when my older brother and I were just ready to start off as usual, father came to us looking pretty stern. As well as I can remember he spoke something as follows:

"Boys, a responsibility rests on my shoulders. The carriage stands there ready to take you to church, and there is plenty of room. If you decide to go with us, well and good, and you are most heartily welcome to our home as long as you choose to stay. If, however, you choose to spend your Sundays as you have been doing, and with the crowd you have been going with, you will have to find a home elsewhere. I have thought the matter over for some time past, and I am sure I am right. Think it over, and take your choice."

As memory goes back, may God forgive me for being obliged to relate that, at that time, I regarded this as an encroachment on what might *now* be called "personal liberty." I advised that we go ahead as we had started, and suggested the "old gentleman" would probably "let up a little." Marshall, however, knew father rather better than I did, and suggested we "go to meeting" just this once, any way. I didn't seem inclined to agree, however, until he further added: "Ame, there is a lot of pretty girls up at the church, as well as off where we were intending to go," and that turned the scale. We went to church, and, singing in the choir of that country church, I caught about the first glimpse of her who is now Mrs. Root. Please don't smile, dear reader, when I confess that, after that Sunday, I needed no more urging toward *church-going*. My motive was not a very good one, perhaps, but it resulted in my hearing some good honest sermons that I very much needed at that age. It was the turning-point in my life. Father did not *say*, as did Joshua, "Choose ye this day whom ye will serve," but it came pretty near to it. It is, I happen to know, *just now*, a question as to how far a father shall go with boys just turning into manhood. To threaten to "turn the boys out of house and home" is certainly a pretty severe procedure; but what other course had he? Let me tell briefly how we had been spending our Sundays.

It is true we usually went to a Sunday-school in a country schoolhouse; but we went there only to interrupt the services and "have fun."* After Sunday-school we went to a sort of grocery (there were no *saloons* at that early day), and bought *beer*. One treated the crowd, and the next time another treated. As an evidence of my want of sense at that early age my brother had to inform me that after I had taken the beer others paid for it was incumbent on me to treat likewise. At that time my "income" was from chickens, and it came a little hard to take my well-earned "chicken money" to treat a crowd to *beer*. (Have any of our "chicken" readers had a like experience?) Well, I got the experience "good and hard." As the barkeeper filled the glasses he asked me if we would not like a little wine in with the beer. As it never

* Years afterward, when I started to serve the Lord one of my first promptings was in regard to that Abbeyville Sunday-school, and for eight years I went down there (five miles), winter and summer, and kept the school going. I have in past papers mentioned some of the results.

entered my head the spoonful of wine would cost any more I innocently said, "Yes, put it in;" but when he explained it was ten cents each instead of five, because of the wine, I became wiser and sadder also. I "wisely" concluded, also, even if I was only sixteen, that the "*chicken* business" would not *stand* any such "incidentals."

Had Eli "laid down the law" to his two sons Hophni and Phinehas, as my father laid down the law to *his* two sons, it *might* have averted that terrible war that cost Israel 34,000 men. The example these two set by profaning their holy office did at least very much to corrupt and lead astray the nation. It has been suggested more than once that the terrible war now going on in Europe is the result of letting men stand in high and sacred places who, like Eli's sons, "knew not the Lord."

Let us now go back and consider what might have happened to *me* had I chosen differently on that momentous Sunday morning. Like many another boy of sixteen I had not at that age any particular conscientious scruples about following my fancy for any particular "Delilah." In fact, I had already an eye on a girl I had met and talked with on those Sunday trips.

Just recently we had "Endeavor Sunday" here in Bradentown. The Endeavorers of all denominations had a *union* meeting, filling a great church. Our pastor gave us a splendid Endeavor sermon, and among other things called attention to the marriages that had resulted among the Endeavorers. He said the Christian homes they had established and were establishing were *model* homes, and were going to raise the standard of the nation. My friend, if you want a wife, look for her in the church or Sunday-school or Endeavor society.

Just a word about that expression in our last text, "that thy days may be long upon the land," etc. I am now over 75 years old, and able to do quite a lot of work besides writing these Home papers. Is there any probability that this would have been the case had I decided differently on that Sunday morning? Suppose I had kept on with the beer-drinking crowd, perhaps married the bold girl I had met (say at eighteen) instead of waiting until I was twenty-two, etc. Suppose I had cut loose from the dear old home and the praying mother—the mother who was doubtless praying for her boys *most earnestly* when they were settling the momentous question, "Choose ye this day whom ye will serve."

BEE "KEEPING" BY A. I. ROOT; "THAT BEE DISEASE."

Since A. I. Root has become "really and truly" a *beekeeper,* you would naturally expect some words of wisdom from him on the subject. Well, I think they are coming. Before the "wisdom," however, I want to say that it seems that, wherever I go, people *will* introduce me as "the great authority on bees;" and one of the papers recently was so kind as to say I probably knew as much about bees as "any man living," etc. Of course, I try to explain (modestly, of course) that I *was* "pretty well up" in a former age; but "the present generation," etc. Now for the wisdom.

About a week ago I noticed some immature bees and larvæ out on the ground in front of that three-story hive; but as the bees seemed very busy on the advance orange bloom I supposed they must be putting some honey above; for when last examined they had quite a few sealed stores; but the morning after finding a teacupful of dead bees were out in front, and more that could just crawl on the bottom-board, I tell you that hive was pulled apart quick.

There wasn't a cell of honey in the whole colony, and scarcely a cell of unsealed brood, although there was a *big lot* of sealed brood in almost every comb below. With the cold rains we are having (three times the normal amount of rain during the last winter), they had been able to work only "from hand to mouth," with the great amount of brood they had been caring for. I got a jar of honey "in a jiffy," and, holding it high up, let it drizzle slowly into the empty cells. The honey was *really* about half hot water, so they could handle it quickly; and after the hive was closed up you ought to have seen the rejoicing. They poured out of the hive almost as if they were going to swarm, and then danced in the sunshine to express their thanks for their sudden and unexpected timely deliverance. It made me think of some of my timely answers to prayer, when I was caught unexpectedly in sore straits. To make sure of no more such "blundering" I gave them a whole pint of honey next day, poured into the empty combs in the upper stories. How is the above for the "great beeman" with only *one* colony of bees to care for? I then put the dead bees on the ground in front, in a corn-popper, sprinkled them with sweetened water, then placed them in a warm oven, after the fire was all out, but only a few revived. They had been neglected just a little too long. Of course they are all right now, but my loss through almost criminal neglect is all

the unsealed larvæ right in the middle of March, during orange bloom.

The above reminds me of an incident of perhaps thirty years ago. A prominent judge came to me one morning during fruit bloom, saying his bees seemed to be "sick," for they were crawling about listlessly in front of the hive, instead of working on the apple bloom, etc.

He said, "Mr. Root, I reasoned that, if there was any disease that afflicts bees, you would be the man of all others to diagnose it, and you would also be more likely to know the specific remedy, if there was one." As soon as I lifted his hive I replied:

"My good sir, I am glad to tell you I *do* know all about the trouble, and the proper medicine, and that I can cure your bees in a few minutes. Get me a teacupful of sugar and some hot water." I sprinkled the warm sugar and water on top of the combs, and also a little on the almost lifeless bees in front of the hive, and in a few minutes there was a glad uproar. The learned judge said he never before heard of *sugar* as a *medicine*.

Again, when Mrs. Root and I were in California, one morning a young man with a fine span of horses and buggy drove up to our boarding-place. He said I must go out in the country and look at his bees, for he was in trouble. He insisted that Mrs. Root should go also; but when we got there his good mother was in a flurry because he had not told her he was going to bring home company to dinner.

I am going to have two morals to this story, and one of the two is this: Don't ever bring company to dinner without first informing your wife or mother that you wish to do so.

In spite of Mrs. Root's protest the good woman *would* work hard to get up "a fine spread."

Well, I found fully 50 colonies of bees, more or less, afflicted with the "disease"(?) we are talking about. Some were too badly "affected" to be fully restored; but with a pailful of sugar and a teakettleful of hot water we soon had the whole outfit filling the air, and rejoicing in health, and the owner and his mother both happy and wanting to pay us for just telling them the bees were simply *all starving*.

Once more, when your hives are full of brood, especially unsealed brood, it takes a pile of honey and pollen to fill the hungry mouths. Right in the midst of a honey-flow, or what should be a honey-flow, I have often found populous colonies without a cell of honey in the whole hive *in the morning*, when the combs seemed, the night before, to be fairly supplied. Now, if cold rainy weather comes on, say for a day or two, the honey crop is often curtailed to a greater or less extent, and yet the owner may never know nor even *guess* what caused his disappointment. Just a temporary check on brood-rearing at a critical time results in less. This is my *second* moral, and if it shall cause *you* to be more watchful I will try to think *my* blunder was providential, inasmuch as it caused me to give you this warning.

"WATER-WITCHING," ETC.

I wish to write a few words on the subject of water-witching, in which you have often expressed disbelief. I never believed it, and can't say that I do yet, but wish to tell you of what happened in this neighborhood, where water was apparently found by this method on a farm two miles from here. The farm was owned by two young men who, however, did not live on it, but kept it for pasture. There were two wells on the place, but they always went dry when there came a dry time. The summer and fall of 1913 were exceptionally dry in Ontario, and I believe it was so in many parts of the United States. In the early part of August these two wells went dry, and it was very inconvenient, especially as the owners did not live on the place. Their brother's hired man, who lived five miles away, heard of this, and said he would find them a well by witching providing there was any water on the place. He came over one day and "located" a well 20 or 25 rods from the other wells. He said they would have to go down 30 or 35 feet; or if they got water any sooner it would be a very strong spring. As soon as they got their harvest off toward the beginning of September they started to dig. I often talked with them, and laughed for trying to get water by this means. At 23 or 24 feet they struck a very strong spring which rose to within nine feet of the top ground. The well is as good as ever to-day, and *seems* to prove something in favor of water-witching.

Brucefield, Ont., Can. HUGH MCGREGOR.

My good friend, in the above case two wells were dug (you don't tell the depth), and no permanent water; but a third one, a little distance away, gave a good continuous supply. This often happens, as we all know.

Let me repeat: God and nature are "no respecter of persons." Every *real discovery* in the realm of science works alike with *everybody*. In all the reports that have come to me, I have never yet found an educated scientific man (say like our college professors) who could locate wells as above. It is conceded by all that the subject will not *bear* the searchlight scrutiny of up-to-date science. It won't even "work" when the operator is blindfolded.

Possibly you may be interested in knowing that I had a colony of leather-colored Italians (propagated from nuclei bought of you) in a ten-frame sectional hive that produced 70 shallow frames of comb honey last season—just a little over 280 lbs. of surplus honey. The queen was one year old last July. All my bees did well, a few colonies averaging considerably over 100 lbs.

Lynchburg, Va., Dec. 2. A. P. ROBERTS.

HIGH-PRESSURE GARDENING

OUR FLORIDA GARDEN, ETC.

A few days ago a representative of our Bradentown *Evening Daily* paid us a visit. He pretty soon took out his notebook and pencil and tried to take down the names of some of the new plants from the Department of Agriculture; but when he came to *Jabotica caba, feijoa,* etc., he gave it up. I have left out some, and made slight modifications where he did not quite catch my hurried talk.

"NEVERSWEAT" FARMER BUILDS SCAFFOLD TO SUPPORT FINE FRUIT.

A. I. ROOT MAKES PILLOWS FOR PAPAYA "APPLES" LARGE AS WATERMELONS TO REST UPON; COLLECTS DASHEENS FROM MANY LANDS; MAN WHO KNOWS ALL ABOUT BEES TAKES DELIGHT IN TESTING POSSIBILITIES OF FLORIDA SOIL AND CLIMATE, AND IN PROPAGATION OF FANCY AND USEFUL NOVELTIES.

A. I. Root who maintains a winter home on Richland Avenue, who knows more about bees than any other person in this "neck of the woods" (and probably more than any one else in the world), is the champion neversweat farmer in this part of the earth. Indeed, the man of large affairs, who delights in spending his winters in Florida, is so enthusiastic in the matter of his farming operations that he can scarcely take time from his wonderfully interesting garden to make the trip to the postoffice or to the corner grocery with dasheens and duck eggs with which to pay the family grocery bill.

"About forty years ago," Mr. Root said at the home yesterday, "I became interested in the study of bees. Some folks said that I was mad on the subject of bees," he remarked with a smile, in remembering and relating the conditions of so many years ago; "but when I discovered and demonstrated that I could take a barrel of honey in a season from a single colony of bees my critics were forced to admit that at least there was method in my madness."

It would be a difficult matter to find one in any station of life who is apparently happier in his work than is Mr. Root in his. In the beautiful garden which is a part of the splendid homestead in the southwest part of the city the owner takes special delight in collecting rare and possibly promising specimens of fruit and vegetables from all over the world, and it is frequently his pleasure to enjoy the juicy freshness of some new variety that cost him several dollars a pound. He enjoys this novel experience with the same relish that he does the dasheens which he takes from hills producing half a bushel to the plant. It is all the same to him. He is a philanthropist in his work to the extent of seeking to propagate varieties of fruit and vegetables which will prove valuable for general cultivation in addition to the varieties which he cultivates purely as novelties.

In his collection of dasheens there are varieties from South Africa, from South America, and other tropical lands. He sees in these a valuable crop whose cultivation and uses should be more generally understood and appreciated. Every part of the plant is edible—not only edible but exceedingly desirable as a food, Mr. Root says. The tubers are better than potatoes, he believes, as a food, and he likes them, baked, twice a day. The stalks are fine and tender, and pleasant to the taste as asparagus, a real luxury of the North, and the leaves are equal in desirability to the best of spinach greens.

Mr. Root's specimens of the dasheens from South Africa and South America are gifts from missionaries who were his friends, and are prized because of their associations.

In the wonderful garden which constitutes a revelation to the northern visitor who is unfamiliar with the marvelous possibilities of Florida soil, a specimen of the *Papaya carrissa* flourishes. Missourians call it pawpaw, although the pawpaw of the Missouri bottoms is quite different from the fruit in Mr. Root's garden. The odd and even unusual thing about Mr. Root's papaya-tree is that he has scaffolding constructed all about its body like the scaffolding about a house in course of construction.

This work does not constitute a device for saving the tree, but is a support for the fruit, of which there are eight or ten specimens, some of which are beginning to ripen. They are so large that it is necessary to build the support about the tree to hold crossbeams upon which the fruit rests, on padded cushions.

Mr. Root is cultivating a large number of trees which are rare and almost unknown in America, whose names can be spelled only through the diligent aid of the most classical works on botany. He has rainbow corn, one of Burbank's novelties, and specimens of his spineless cactus, growing close to the old-fashioned peas and beans like those which grew in grandma's garden, and the Irish potatoes, the real thing in "Murphies," in which the winter resident rejoices.

While Mr. Root enjoys working with his own hands in the development of his Florida property he keeps a man who devotes his time to the care of the premises and the cultivation of the various crops produced there, including a splendid yard of chickens and pens of Indian Runner ducks. He has invented his own arrangement for baffling the efforts of the woods rats to rob his poultry. A galvanized tub set on the stump of a tree provides a unique feeding-trough for the chickens, and a tub planted in the soil and filled with water, in which grain is cast, furnishes an ideal feeding-trough for the ducks, and is rat-proof.

While the matter of profit is not a consideration with the farmer who loves to revel in the splendors of the Florida winter, it nevertheless is a source of satisfaction to him to know his products, many of them, even when grown in an experimental way, are produced at a profit.

Mr. Root likes Florida so well that he would like to remain here the year round; but Mrs. Root remembers five sons and daughters, all married and living in separate homes, and within talking distance of the old homestead in Medina, Ohio, which is their home town.

There is a bevy of grandchildren, also living in the homes about the old homestead; and soon after the annual migration of the wild birds she insists on moving back where she can be near her treasures.

HELIANTI, THE NEW FLOWERING PLANT AND VEGETABLE, ETC.

Last May one of our readers sent me a circular in regard to this plant, and in our issue for May 15 I severely criticised the Burgess Seed Co., who sent out the "glowing" circulars; but in the June issue I gave notice that the above seed company procured the seed and circulars from a prominent seedsman. The Burgess Co. also kindly sent me a few tubers for trial. In

our Oct. 1st and Nov. 15th issues I made a report. Well, I brought tubers, and also *seed*, down here in Florida, but so far have entirely failed to get either to germinate. This failure may be owing to the very unusual amount of cold rains we have had. These little tubers are certainly a very delicious vegetable; but so far the yield at our Ohio home is not any thing near what is advertised. Although the plants were away above my head, and covered with very pretty little "sunflowers," I don't think I got a pint of tubers to the hill, and it was a lot of trouble to get them out of our clay soil, as they are seldom as large as your little finger. As they are surely a nutritious and delicious vegetable I really hope that, in some soils, they *may* go up to "2 or 3 hundred bushels per acre." In our Nov. 15th issue I did not give the Burgess Seed Co. proper credit, because I was told by somebody they were out of business; but I since learn they had only moved their seedstore from Allegan to Galesburg, Mich., where their seed-farm is located. They now send out a very pretty little catalog describing helianti, the winter melon, guada bean, etc. The catalog informs me that the reason we did not appreciate the guada bean was that we attempted to cook the *mature fruit*, whereas it is only the small young ones that are "equal to asparagus," etc. As I now take it, you might as well undertake to eat a "ripe cucumber." The Burgess folks *guarantee* their seeds—no such talk as "after this our responsibility ceases," etc.

TEMPERANCE

"WHAT DO YOU THINK?"

My dear Brother A. I. Root:—In the last half of the second column on page 875, November 1, I find some questions asked for your friends to answer. As I consider myself one of your friends, allow me a word or two in your temperance department. You ask, "What do you think of the man who made money by selling the whisky that caused the poor crazy man to fight with, and *kill*, his poor innocent hard-working *blind* wife who was *tied up* to a drunken husband?" Allow me to ask a question in answer: Would any of the readers of GLEANINGS think the whisky-seller should work for the United States Government for just a bare living? Do not all Government employees get better pay than that? It is *well* that we do not forget that the *saloon*-keeper is a necessity in the economy of these United States if we are to have "half our government expenses" paid. See first column of GLEANINGS for September 15, 1913, page 663. I should prefer that the half of my government expenses be paid by a direct tax; but so far I have been unable to have *my* say in this matter.

Next you ask: "Can any church-member, in the face of the above, think for a moment of voting wet?" No, I cannot. But, dear reader, what is voting wet? I charge, without fear of successful contradiction, that nine-tenths of the voters of the United States did vote "wet" on November 3, 1914; otherwise all the congressmen who stood pledged that this liquor-taxed, licensed-saloon business for revenue should continue, if they were elected, could not have taken a seat at the head of our government. And how many of these were elected by the *sovereign* voters of the United States? All but one. One congressional district in California said their congressman should carry his part of this government "dry." And if all the other congressional-district voters could have done their "church-member duties" in the same way this country would have been as dry after the 4th of next March as in Russia today; and this people had the proof that the only way to kill this cursed business was to "knock it in the head." See GLEANINGS for July 1, 1914, page 526. It took an Old World monarch to teach us how this nearly one-sixth of the area of this world of ours could be made "dry" in one day—yes, absolutely dry. Shall we heed the lesson? In your familiar call, "May God help."

Borodino, N. Y. G. M. DOOLITTLE.

PROHIBITION IN KANSAS; BY CONGRESSMAN JOHN CONNELLY

When I read the *American Issue* I am tempted to clip for GLEANINGS from almost every article. I wish our *Ohio* readers at least would subscribe and read it all.

To-day we issue a challenge, and feel free in so doing. We dare you to find a community in Kansas where the abolishing of the sale and manufacture of liquor has permanently increased the taxes raised in other ways; where it has increased the crime in the community or contention among its citizens; where it has increased want and misery among her people, or has made it more difficult for men to reap a recompense for their honest endeavor. I know little about the workings of prohibition elsewhere; but when those who are opposed to the principle desire to point out a place where prohibition has been a failure they must leave Kansas out of their calculations.

I am glad to speak to-day for the splendid commonwealth of prohibition Kansas. Half a million boys and girls tread her highways who never saw a place where liquor was legally sold, and a hundred thousand of them never saw a drunken man, nor do they know the taste of liquor. The older generations are not entirely free from the baneful effects of the liquor habit; but from the loins of that mighty people there is coming into maturity the new generation free from the tyranny of its hurtful reign. May it please God that, with the coming of another generation, we may not only appreciate the benign influence of statewide prohibition, but may we hope there will soon be no place where a licensed grogshop may find lodgment under the protecting folds of the national flag. For this we dare to hope, for this we dare to pray, for this we dare to vote.

"BY THEIR FRUITS YE SHALL KNOW THEM."

We take pleasure in submitting the following from the *Sunday School Times*:

A few weeks ago a Philadelphia man and his wife decided to give up drinking. When the regular case of beer was delivered to the house the woman reported that she asked the driver to remove all of the empty bottles that were in the cellar. "Now you

may take away that full case of beer, and not bring any more here."

"Would you mind telling me," said the liquor man, "whether Billy Sunday had any thing to do with this?"

"Yes, he did," answered the woman; "we've been to the meetings, and decided not to drink any more."

"You are the tenth customer," he said, as he prepared to depart; "you are the tenth customer that I have lost to-day on account of Billy Sunday."

And that was two weeks before the Booze sermon was delivered!

"GOD'S KINGDOM" COMING.

And the following also, from the same issue:

The claim that more liquor is being consumed to-day than ever before is one of the claims that trouble many temperance people. Billy Sunday brought this claim into the open and met it with a printed report that was given to him by a government official. The figures given were by the United States government. The whole tabernacle smiled with Billy as he told them confidentially that he had friends on the inside who kept him posted on the real facts. He chuckled with pleasure as he held the sheet in his hand; and as the laughter quieted down he hurled these figures at the audience. For the government year ending 1914 the amount of whisky that was consumed in the United States was 10,741,738 gallons less than was consumed in the year ending June, 1913!

OVER 189 MILLION PASSENGERS CARRIED, AND NOT ONE KILLED.

SAFETY FOLLOWS SOBRIETY.

In 1914 the Pennsylvania Railroad Company throughout its entire system carried 189,167,326 passengers, and not one of these passengers was killed. This is the company's star record. It will be remembered that the Pennsylvania company strictly enforced its rule against drinking on the part of its employees, does not sell liquor on its dining-cars, and has closed the bars in all of its stations.—*American Issue.*

"CAPT. RAND" AND HIS "LUCKY STONE."

Dear Mr. Root:—Please print in GLEANINGS your opinion of the so-called "lucky stone."

Surrey, Cal., Nov. 17. MRS. ANNA ROSE.

My good friend, the above has been referred to two or more times already. It is, of course, useless to pay out a dollar for a common pebble so as to *insure* the owner "good luck." A horseshoe nailed over the door will do the trick just as well, for we all have more or less good luck every day of our lives; but we never take note of it (nor thank God for it) until we have invested our dollar in an innocent pebble.

ONE CIGARETTE, AND WHAT IT DID.

We clip the following from the *Christian Herald*:

ONE CIGARETTE, $500,000.

Starting, it is alleged, from a cigarette thrown into some rubbish, a fire destroyed railroad property at Camden, N. J., January 3, to the value of more than $500,000. The railroad station and ferry slips of the Atlantic City Railroad Company and some twenty-five vestibule cars, besides a nearby lumberyard, were destroyed; a dozen persons were seriously hurt, and over one hundred firemen were overcome by the smoke. It required the services of eighteen local fire companies aided by apparatus and fire-boats from Philadelphia to subdue the flames, which were fanned by a north wind. Thousands of spectators watched the spectacle.

One addicted to the cigarette habit, as a rule has too little sense to know any better than to throw the burning paper into any combustible matter.

WOULD WOMEN VOTE IF THEY COULD?

In answer to the above we clip the following from the *Woman's Journal and Suffrage News*:

At the presidential election in Arizona in November, 1912, when women could not vote, the total vote cast was 23,722. At the gubernatorial election in November, 1914, when women did vote, the total vote cast was 51,007.

In like manner in Kansas, in 1912, the presidential vote was 365,444. In 1914 the gubernatorial vote was 530,206.

Oregon, in 1912, cast 137,404 votes. In 1914 it cast 210,566 votes.

At the gubernatorial election of 1910 in California the last general election at which men alone voted, the vote was 385,713. In 1914, at the gubernatorial election, with women voting, it was 926,689.

In Washington, at the 1908 election, the vote for governor was 176,141. Women were enfranchised in 1911, and the vote in November, 1914, was 345,279.

These are the latest five States in which women have had an opportunity to vote at a general election. The difference between the vote before and after equal suffrage should put an end to all arguments that women do not use the vote.

"THE FATHERHOOD OF GOD AND THE BROTHERHOOD OF MAN."

My dear Mr. Root:—I am inclosing $1.00 for the renewal of my subscription. I am not handling bees, but in a general way I am interested in the discussions and experiments on that line. The honeybee has been one of the potent agencies in our American civilization. The same may be said of our horticultural productions. Furnish the home with fruits and honey, and the home is far more complete and happy. Our heavenly Father has provided a supply for the legitimate wants of every living creature; and with a proper adjustment in our social relations every need of every human being can be supplied, so that there should be no necessity for war.

> Our Father is rich in houses and lands,
> Rubies and diamonds, silver and gold,
> He has riches untold.

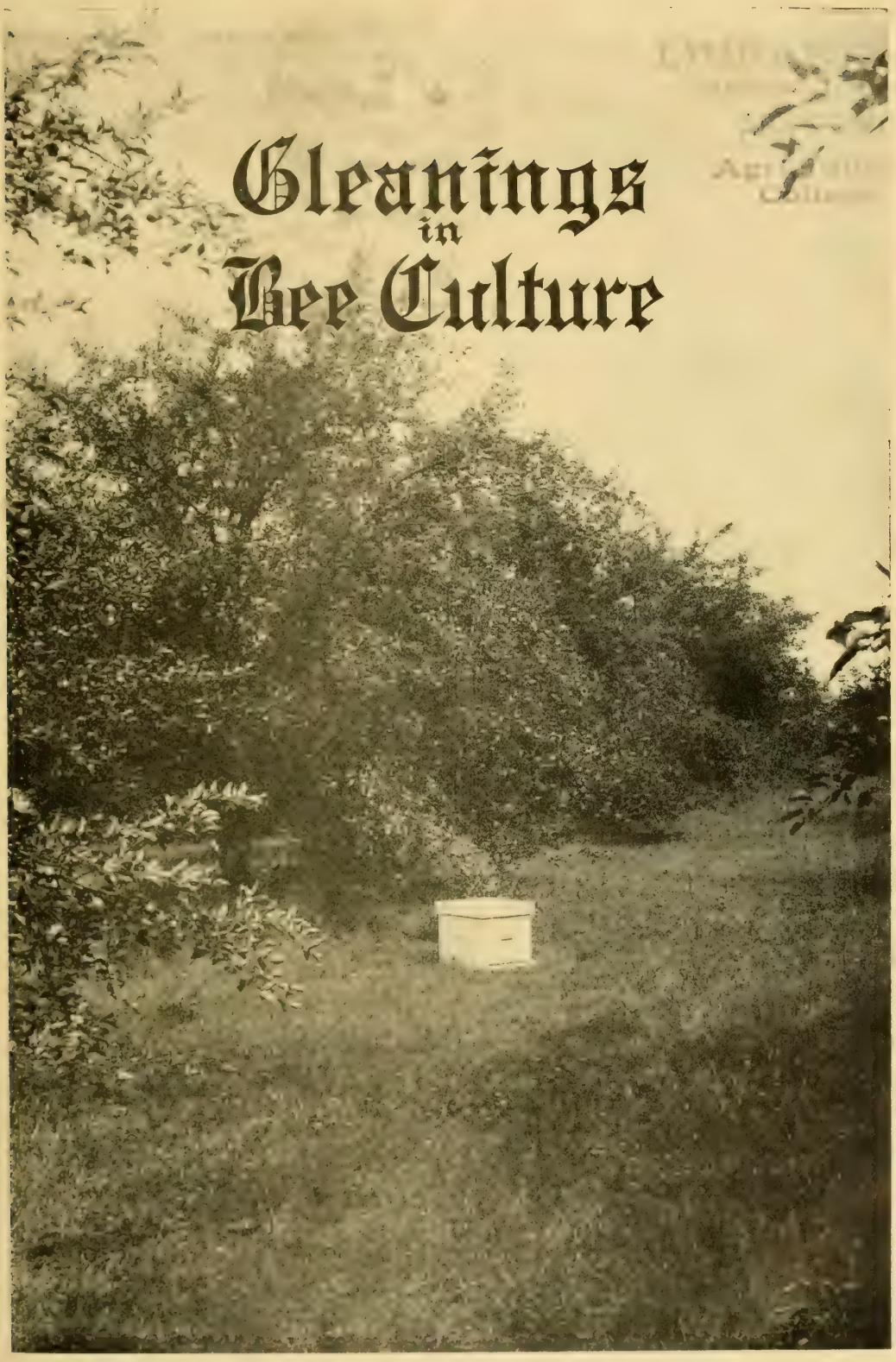
But the wastes from war and dissipation to the present time would build for every family on earth a palace of marble and decorate it with gold, so that Aladdin's dream might be realized.

I am interested in your apiology; but for me the greater attraction is in the common-sense sermons which you are preaching to what is one of the largest congregations in the world. The world is learning that true religion does not consist in mere profession, ceremony, or ritualism, but a life and character which is in harmony with the spirit of Christ—a religion which recognizes the fatherhood of God and the brotherhood of man.

Urbana, Ill., Feb. 4. I. R. REASONER.

Vol. XLIII APRIL 15, 1915 No. 8

Gleanings in Bee Culture



Bees in Apple Orchard

The Lure of the Land, $1.50

By Harvey W. Wiley, formerly Chief Chemist of the United States Department of Agriculture

Gleanings in Bee Culture (1 Year) $1.00

Both for $2.00 Postpaid

The author of THE LURE OF THE LAND encourages business men to gratify their longing for the freedom of the open air, but at the same time portrays the problems to be solved and the hard work required in order to make farming pay. A very readable book, human in quality, yet invaluable for reliable information. See what A. I. Root has to say about it on advertising page 18, March 15th issue.

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The Born-on-the-Farm Myth,
The Dairy the Hope of the Small Farm,
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Is the Small Farmer to Disappear?
The Place of the Farmer in the Social Scale,
The Farmer's Market,
The Farmer and Parcel Post,
Farm Finance,
Back to the Farm,
Genesis of the Soil and Its Possibilities,
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The A. I. Root Co., Medina, Ohio

Gleanings in Bee Culture

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VOL. XLIII. APRIL 15, 1915 NO. 8

EDITORIALS

Our Dismal Swamp Apiaries

Since our last report, page 258, conditions at our Dismal Swamp apiaries have improved materially. The bad weather did not hurt us after all. Indeed, we begin to feel that we shall secure nearly the increase we set out to make in the first place. Our Mr. Pritchard reports that the bees are booming. More anon.

Wintering in Medina

Indications in Ohio show that the winter is not going to be as serious as we once feared it might be. The loss will be somewhere about 30 per cent, and that mainly in the colonies that had aster stores from the swamp. The bees, however, in big quadruple winter cases, no matter what the stores were, seem to be coming through in excellent condition.

Wintering over the United States

So far it has been a late, chilly, cold spring in the South as well as in the North. In many localities the season is estimated at from three weeks to a month late. There is danger that there may be some heavy winter losses of bees this year. If the cold spring continues, spring dwindling will doubtless get in its work. Please send in postal-card reports of how bees are wintering, and we will publish a summary in our next issue.

Later.—Weather has moderated all over the country. It is to be hoped that we may have good weather from now on.

A Strain of Caucasians that do Not Run to Swarming

Mr. Herman Rauchfuss, of Denver, Colorado, has a strain of Caucasian bees which he secured in the Caucasus ranges some years ago, and which, he says, are fine workers, very gentle, *and do not run to swarming* like those we had. He is not in the queen business, but has been keeping this strain from year to year because they have been doing remarkably good work for him in honey production. They breed up early, and will go to the fields earlier and later than the ordinary Italian strains.

Back Home Again

E. R. Root has finished his western trip. Since being away he has covered over ten thousand miles, going from the eastern coast to the western coast, with stops here and there. It has been a whirlwind of a trip. Except for two or three days at the Dismal Swamp, Virginia, ten days at home, two days at Salem, Idaho, four or five in San Francisco, two days in San Diego, Cal., he has not slept twice in the same bed nor even eaten two meals at the same place. There are many of our friends whom he had to miss seeing, particularly in and about San Francisco, Los Angeles, and San Diego.

For a few weeks the editorial department will have something of a western flavor. Indeed, it began to take on that complexion in our issue for March 1.

"One of the Boys"

We had a most delightful interview with P. C. Chadwick, in his California home. In this issue, page 309, he refers to his "boss," as he calls him, as "such a warm, open-hearted man! just one of the boys." We appreciate the compliment. To be one of the "boys" and nothing more is enough. Incidentally we might remark that Mr. Chadwick is another one of the "boys" whose home life is delightful. He has a family of which any man may be proud.

He is one of Uncle Sam's mail-carriers; but he is operating two outyards of bees, and one of the prettiest gardens that one can find in the United States. A. I. Root, if he could see that garden, would be one of the "boys" for a little while, sure. He would say "My stars!" at every turn. We

congratulate ourselves more than ever that we have an all-round man like our correspondent to represent GLEANINGS on the Coast. He knows the horticultural as well as the apicultural proposition.

Denatured Sugar

AT one of the last sessions of the National Beekeepers' Association, Dr. Jager, the man in charge of the agricultural school at Minneapolis, suggested the matter of using denatured sugar. In Australia, for example, the beekeepers petitioned the general government to remove the duty from sugar fed to bees; but in order to prevent such sugar from being used by the public generally, a scheme was employed to "denaturize" the sugar, or, rather, to color it so it could not be used for domestic purposes. An infinitesimal amount of coloring matter which could in no wise be injurious to bees colors the sugar just enough so it can be used only for bees. In this way it is made available to the beekeepers at reduced prices without the duty.

Dr. Jager suggested that the National Beekeepers' Association pass a resolution asking the general government to make some provision by which the beekeepers of America could use a similar denatured sugar. The question was debated for some time, when it was finally decided to hold the matter for future consideration.

Educating the British Columbians

WHAT is a skilled beekeeper? F. Dundas Todd, foul-brood inspector for British Columbia, says the difference between skilled and unskilled is that the former secures a crop three times as great as the latter. In his circular on honey production in British Columbia for the season of 1913-14, he shows that there are also about three times as many unskilled beekeepers as skilled, as we might expect. The average crop per colony reported by the skilled class was 84 pounds in 1914. Were all the amateurs shortly to become as experienced as the skilled beekeepers the local market would be swamped unless the honey were disposed of elsewhere.

The people of the province are rather poor consumers of honey, so there is plenty of room for development of the market. The buying public must be tempted by attractive packages and attractive advertising. British Columbia has all the qualities one could desire in honey. The main thing is to prove this.

The Three-cornered Alfalfa Hopper

THE importance of alfalfa as a honey-plant makes of interest to beekeepers any information regarding its pests. Perhaps the most difficult of these to eradicate, as well as one of the most active, is the "three-cornered alfalfa hopper" (*Membracis festina*), the subject of a recent monograph by V. L. Wildermuth, published in the Jan. 15th number of the *Journal of Agricultural Research,* Washington.

Alfalfa is not its only food. The insects have been found on a great variety of plants, particularly on clovers. Of alfalfa, however, it seems to be particularly fond. Injury is due to the sucking of plant juices by both adults and larvæ, and the development of a feeding ring or scar. The insect leaves the plant in a wilted and often dying condition.

While no method has yet been discovered which will entirely control the pest, its numbers may be greatly reduced by clean methods of farming, such as the eradication of weeds, rubbish, etc.

While the alfalfa hopper is found in greatest abundance in the southwestern and southern part of the United States, it extends its range in limited numbers as far west as Montana and as far north as Ottawa, Canada.

Adulterated Beeswax

THOSE who are buying beeswax in any quantity are cautioned to look out for adulterated beeswax offered by dealers at a cent or two below general market price. It has been found that some of these cheaper waxes contain from 5 to 10 per cent of paraffin or ceresin. Those who have put out this adulterated product have probably been laboring under the assumption that wax containing so small a percentage of adulteration would not be suspected, and therefore not put to the chemical test. Ordinarily the "crack" test to an experienced eye will show as low as five or ten per cent, providing, however, that such an experienced eye is on the lookout for these low percentages of adulteration.

Again, it has been generally supposed that ordinary beeswax in cakes of all sizes and colors is probably pure, the presumption being that such wax is gathered up from numerous beekeepers, who, of course, use all kinds of utensils to *cake* the product; but some of the adulterators have learned this trick, and have been buying up old pots and kettles, even going so far as to dent or jam some of these pans slightly out of shape.

Grasshopper Enemies of Alfalfa

What insects attack alfalfa are of concern to the producers of alfalfa honey, in some indirect measure at least, since prosperity depends upon their control. Two or three common species of grasshopper, their habits, and the methods of preventing or destroying them, form the subject matter of Farmers' Bulletin No. 637, "The Grasshopper Problem and Alfalfa Culture." This new circular will be of interest wherever alfalfa is threatened by an attack of these insects.

One of the enemies is known as the differential grasshopper, another as the two-striped grasshopper, and the third *Melanoplus atlanis*. Others have been reported to have had a part in the damage, but these are the principal culprits. Since the eggs are laid just below the surface of the ground, the most effective means of preventing their hatching is to plow or dig the soil to the depth of two inches. Full-grown insects may be destroyed by the use of a hopperdozer, a simple coal-oil pan dragged over the ground, or by means of poisonous bait.

Unless steps are taken to eradicate this pest, it is possible it may assume serious proportions.

Not Winter Nest but Aster Stores Responsible for the Loss

Our friend and correspondent Mr. J. L. Byer, of Canada, in our issue for April 1, in his department, says: "It is not often that the editor gives me such an opening as that on page 176, March 1, when he tells of so many colonies being dead." Then he goes on to give it as his opinion that the death-loss was due to "too much winter nest." Perhaps we should have explained on page 176, which we did not do at the time, that the bees referred to consisted of ten colonies in double-walled packed hives by themselves in the Blakeslee yard, and an equal number at the Harrington yard. These colonies had come from the swamps near Akron, and were supplied almost entirely with aster stores. As a matter of fact, they did not have a winter nest, but had solid stores of aster, or practically aster honey, and, furthermore, they were not very strong to begin with, but were no weaker than those in Holtermann quadruple winter cases. While there was a 30 per cent loss, there was only one dead out of sixty in the Holtermann winter packing-cases *having the same stores* and about the same strength per colony.

We did not then realize the fact that aster stores were going to prove so troublesome; but later events showed this very clearly. The incident, so far from showing that the winter nest is a bad thing, proves nothing on that point, but, rather, goes to show that the death-loss was due to the quality of stores and an insufficient packing *for the kind of stores*. It also showed that combs of solid stores did not save them.

Prof. Gillette on the Trouble in Western Colorado

We had an interview with Professor C. P. Gillette, Entomologist at the Experimental Station, Fort Collins, Colorado. We referred to the fact that statements had been made that large numbers of beekeepers had lost heavily on account of the spraying liquids falling on the cover crops under the fruit-trees on the western slope of Colorado. He admitted that this was probably true, and was urging the fruit-growers to plow these crops under, or to cut them before they go into bloom. No trouble, he said, arises from the sprays that fall on the fruit-trees, because the fruit-growers for their own protection, and because there is a law against it, do not spray while the trees are in bloom; but red clover, which is chiefly used as a cover crop, comes into bloom when there is a general dearth of honey, and at the very time when the trees are being sprayed with arsenate-of-lead solutions.

Prof. C. P. Gillette is a friend of both the fruit-grower and the beekeeper, and we may rest assured that he will do every thing that lies in his power to prevent the further destruction of bees.

Making All the Clover Seed Germinate

One of the discouraging things in clover-raising has been the low germination of the seed, due to the hardness of the seed coat. Only a small proportion of the seed of the common clovers can be expected to produce plants. Now the Iowa Experiment Station announces that it has constructed a practical machine by which it is possible to scarify the seed coats and thereby increase the germination of legume seeds to over 90 per cent.

The first machine with this efficiency was constructed in December, 1913. No announcement was made at that time, however, in order to allow time for field tests comparing treated and untreated seed, in

addition to extensive germination tests. A large number of plots were seeded on the station field in the summer of 1914, comparing treated and untreated sweet-clover seed from various sources. In a large number of cases, stands which were, if any thing, too thick, were secured from the treated seed, when the same seed seeded at the same rate and time, but not treated, failed to produce any stand at all. The machine as constructed has a capacity of approximately 25 bushels per hour, and requires about four-horse power to operate it. It is estimated that it can be put on the market at a price not to exceed $90 to $100.

The construction of the machine represents eight years' work on the part of H. D. Hughes, Chief in Farm Crops.

During the spring of 1914 and 1915 several thousands pounds of sweet-clover seed were treated for individual farmers. A farmer for whom the section treated some 3000 pounds of seed in the spring of 1914 states that the seed germinated approximately 50 per cent when sent to Ames, but germinated 98 per cent when returned. Another reports using 5 pounds per acre of treated seed, from which he secured a perfect stand, while the usual rate of seeding ranges from 15 to 20 pounds per acre with many failures and uncertain stands resulting from poor germination.

While it is too early to predict the indirect effects of this invention on beekeeping, it may ultimately be of great value. Any thing that will increase the number of honey-plants in an acre of ground will make it more easy for the bees to gather nectar, especially in lean years. An invention that will treble the effectiveness of all the clover seed is likely to mean much to those who depend so directly upon the clovers as the beekeepers do.

Dr. A. J. Cook, Horticultural Commissioner of California

In our last issue we referred to our interview with Dr. Cook. We had the pleasure of meeting him for an hour between trains, and he is the same old Professor Cook whom we used to know away back in Lansing, Michigan. He was always an original investigator and a lover of bees, and interested in all lines of horticultural work. As Entomologist at the Michigan Agricultural College, back in the early days, he did some invaluable research work. Among other things, he was among the very first, if not the very first, to make some direct experiments in testing out the value of bees as pollenizers of fruit-trees. He covered the limbs of certain trees with mosquito-netting before they came into bloom. The result of all this work showed how necessary was the work of the bees. Similar experiments were made by others at a later time with the same results.

Dr. Cook was probably the first to suggest the use of oil emulsions for the destruction of the San Jose scale. About the same time Dr. Riley, then Chief of the Bureau of Entomology, Washington, D. C., was conducting similar experiments and claimed the honor of the discovery; but Cook, we think, from the evidence in hand, was a little in the lead.

Cook was also the first to show that honey is a predigested sweet, or, as he called it at the time, "digested nectar." He was ridiculed by many at the time, even by prominent beekeepers, for putting out such a "heresy;" but now the whole scientific world acknowledges that honey, before it comes to the human stomach, has already gone through one stage of digestion.

Dr. Cook, notwithstanding he is well advanced in years, seems to be in the very prime of his youthfulness. His aggressive pioneer work has sometimes made him enemies; but all he asks is that his work be thoroughly investigated. At times the attacks that have been made on him have been particularly bitter. False charges have been hurled at him; but to-day he stands vindicated as one of the strong men in his state.

The Editor of Gleanings Interviews the Editor of the Western Honey Bee

We had the pleasure of visiting Mr. J. D. Bixby, the genial editor of the *Western Honey Bee*, at his home in Covina, near Los Angeles, Cal. He is one of that kind of men who wear a smile that never comes off. In fact, we had a most delightful talk with him concerning problems connected with the beekeeping industry in the East as well as in the West. In this connection it should be noticed that Mr. Bixby originally hailed from New York, where he had a considerable experience as a beekeeper. He has continued his bee operations in the West for several years back so that in a sense he unites the East and the West. He is eminently well qualified to take up the editorial management of a bee-journal; and, so far as we could learn, that paper is making good on the Coast.

Mr. Bixby is one of that kind of bee editors who are almost every day among

their bees. When we met him he had on his overalls, for he had just come from his shop where he was preparing some supers.

Mr. Hutchinson, the greatest bee editor this country has ever had, once remarked to us that the man, other things being equal, who wrote an article on a hive-cover with a pencil daubed with bee-glue usually wrote something that smacked of experience. Mr. Bixby is evidently one who draws inspiration direct from his bees; if so, all the better for the *Western Honey Bee*.

In speaking of the orange country for beekeeping, Mr. Bixby made this significant remark: The citrus region makes a good *bee* country, but not an extra-good *honey* country. In other words, the orange-groves will furnish honey fast enough to build up colonies amazingly, and one can raise bees very easily; but it is not so easy to get the honey. The only way to accomplish this is to make all colonies strong. The brood of all the weak colonies is given to the fair ones, so there will be nothing in the yard except strong ones. With these one can get a crop of orange honey if the season is any way fair. Where orange is followed by sage or some other stores, one has a good honey country. But it is not often that one can have this combination.

Government Honey Cook-book

VARIOUS ways in which the housewife can use honey to advantage are suggested in a new publication of the United States Department of Agriculture, Farmers' Bulletin No. 653, "Honey and its Uses in the Home." This bulletin is now ready for distribution, and can be secured free of charge by dropping a line to the Department.

Every beekeeper or any one else interested in the use or sale of honey should secure a copy of this bulletin at once. It is crammed with suggestions for the broader use of honey as a substitute for high-priced sugar, and with recipes for delicious cakes, cookies, and other dainties. Many of the recipes have already been published in this and other magazines, and the suggestions have been gathered from many sources, but at the same time the Department has been making experiments which showed that many of the old recipes are unnecessarily elaborate.

Any suspicion that the public may have regarding the adulteration of honey is dealt a hard blow by the statements, "There is now, it is believed, little adulterated extracted honey on the market," and "Comb honey is practically certain to be the pure product of the hive, because it can be adulterated only by processes which cost more than they save."

Wholesale attention was called to this bulletin, and much of the valuable matter in it was brought out, by a press notice of the Department, which was sent to every newspaper in the United States for release April 14.

The Old-time Prejudice of the Fruit-growers against Bees Practically all Gone

EVERYWHERE we go throughout this great West we find that the old-time prejudice against the bees, on the part of the fruit-growers, has practically disappeared. It exists in a few sections among the ignorant and those who would naturally be prejudiced against any industry except their own. All up through the great orchard districts of Oregon, bees are coming more and more into demand. We find the same thing in California, especially in Santa Clara County. The growers of prunes and apricots are especially friendly toward the bees, and are inviting the beemen to put bees in their orchards everywhere.

There was one little section in Oregon where some of the apple-growers were foolish enough to set out syrup poisoned with arsenate of lead to kill bees. They succeeded all right, and destroyed large numbers of them, practically ruining all beeyards of the vicinity; but that foolish prejudice has practically disappeared, and, so far as we know, there is no more poisoning of bees.

There are other localities where bees are not thought to be essential to proper fruitage. The following is a case in point:

An Apple-orchard of 15,000 Acres in the Pejario Valley, Cal., where the Trees are Sprayed while in Bloom; Some Astonishing Revelations

IN connection with Prof. C. W. Woodworth, of the University of California, situated at Berkeley, we visited one of the most famous and perhaps the most extensive apple-growing region in the world. In a little area in the Pejario Valley, with Watsonville as a center, there are shipped out annually 4000 carloads of apples. The whole area comprises something like 15,000 acres, nearly every foot of which is devoted to the growing of apples. The only varieties grown are the Newtown and the Bellflower. Other fruits, such as strawberries

and Logan berries, are grown in that valley that will aggregate nearly 4000 carloads more. Just think of it—8000 carloads of fruit from a triangular region about ten miles across!

But what has all of this to do with bee-keeping? At first we heard that there were no bees there. If that were so it would have a tendency to contradict some of our theories concerning apple-growing; but investigation showed that there were some bees in the valley, just the same, although the number was comparatively small; and the strange thing is the fruit-growers in that valley, supported by the county horticulturist, do not care to encourage the introduction of bees. Another remarkable fact is, that the *trees are sprayed while in bloom;* and the horticultural commissioner, Mr. W. H. Volck, supported by Prof. Woodworth, says *that such spraying does not kill the bees,* and they do not believe that the spraying of cover crops in Colorado would do it either.

Right here locality has a wonderful bearing on the relation of bees to apple-growing. Both varieties of the apples mentioned are self-fertilizing in that valley—that is to say, they do not need the agency of bees to mingle the pollen. At least in that particular valley it would appear that bees are not an important factor in the production of these two varieties.

One more factor is the long period of bloom during which the bees are able to work. A comparatively small number of bees in weather like that of the valley can do the work of many bees in localities where cold and damp weather allows them to work on the blossoms for only a few hours.

But how do they know that spraying while in bloom does not kill the few bees that are there? Professor Woodworth placed a colony of bees right in the midst of the orchards during the time when the trees were in full bloom, and while they were being sprayed. Instead of using arsenate of lead the apple-growers use arsenite of zinc—a much stronger poison; and even this, say Professor Woodworth and Commissioner Volck, had no effect whatever on that colony of bees. They *prospered during the entire spraying season, and stored honey.* After the spraying season was over, the colony was sent to the University at Berkeley, and both the honey and the bees themselves were very carefully examined for traces of arsenic; but none could be found except on the outside of the bees. It seems that the bees were literally doused with the poison while they were flying; but, apparently, they got none of it in their intestines.*

Commissioner Volck was kind enough to take us in his machine over different parts of the valley. We drove something like thirty or forty miles that day. We found bees in several places, but hardly enough to pollinate such an enormous number of trees provided the varieties were sterile to their own pollen, as occurs in most cases and in most localities. In this connection it appears that locality has a strong bearing on the question of whether bees are needed to pollinate the blossoms. The Newtowns and the Bellflowers are the only varieties that do well there, and both are apparently self-fertile in that wonderful clime.

We remarked that if more bees were put in the valley there would be more fruit; but Commissioner Volck immediately replied, "The fruit is too thick there already as it is. It has to be thinned out on the trees."

"But," we remarked, "if there were bees there in sufficient numbers, would not the fruit be larger?"

"It could not be very much better," he said, and pointed to some specimens on the hotel table where we were then eating.

Professor Woodworth is Entomologist of the University of California at Berkeley, and a great friend of the bees. While he freely acknowledges they are necessary for the proper fruitage in many localities, he says it is clear that their presence in that valley is not essential.

He says, however, that there were more bees there on this tour of inspection than he supposed; and he thought it was possibly true that they did some work in those orchards. But one thing he says is quite certain; and that is, that spraying while in bloom did not hurt the bees nor the fruit. He had his serious doubts as to whether the arsenate of lead that fell on the cover crops in Colorado was the real cause of the death of so many bees. We told him that Prof. C. P. Gillette, of the Colorado Experiment Station, was very much of the opinion that it does kill the bees. That might be possible, but he did not see how locality could make all the difference. Dr. A. J. Cook, Horticultural Commissioner of California, on the other hand, said he was very sure that ordinary arsenate-of-lead sprays could and do kill bees under most conditions, and reports generally seem to confirm this.

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* Prof. Woodworth, in an article in GLEANINGS, page 987, Dec. 15, 1914, described the observations and the conclusions he had reached on this matter. Subsequent criticism has been to the effect that experiments with arsenite of zinc would give no result for arsenate of lead, since the former might repel the bees. It was also brought out that one colony one season was not a fair basis for conclusion.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



I WONDER if the light outdoors is not better for bees in winter than the darkness of the cellar.

Now isn't it funny,
With so little money,
The eating of honey
Makes tempers so sunny?

A CAMPAIGN is getting under way to make Chicago dry in 1916. Are they crazy, or is the millennium at hand?

How good it seemed to see the old-time leaders, L. C. Root, P. H. Elwood, and W. P. Henderson, again in print in GLEANINGS, April 1!

ARE you planning to keep tally of every pound or every section you take from each colony this year? If so, then you'll know what stock to breed from next year.

YOU say, Mr. Editor, p. 219, that I can not pack my hive-cover. Why can't I pack that dead-air space? To be sure, it's only ⅜ inch, but it could be made more. Yet the double telescope may be warmer.

M. A. GILL says, *Western Honey Bee*, 7, that he marked his No. 1 sections "not less than" 12 ounces, and his No. 2 "not less than" 10 ounces. That was considerably less than their weight, but he could sell his honey by the case just the same as before the new law, without running the risk of free board at Fort Leavenworth.

JOHN S. SNEARLY, I use thin super foundation in sections, top starters 3¼ inches deep, bottom-starters ⅝. I don't use extra-thin because the bees are so much worse at gnawing it down if at any time there is a lull in the flow; and even if I should use extra thin above I should want heavier for bottom starters so they wouldn't topple over.

G. M. DOOLITTLE'S last way of preventing after-swarms—listening for piping—is excellent, p. 266. For those who might prefer one of his previous plans, let me suggest a slight variation. Leave the old hive standing close beside the swarm for a week. Then, at 2 o'clock, carry the old hive to a new stand. That's less trouble, and just as sure to work as the gradual turning.

USUALLY I go by the blooming of the soft maple in taking bees out of cellar, but sometimes it is not reliable. A little almanac must be mixed with it. This year a few blossoms were out on one tree—and only one—the 25th of March, and the thermometer was up to 55 degrees. If it had not been for the almanac the bees would have come out. But at once it turned cold—15 to 20 degrees each morning—and it was good to know that bees were in the cellar.

THE question is asked by P. C. Chadwick, p. 264, why is it that in one case bees recover from a three-days' freeze, and in another case succumb in a much shorter time? As a sort of forlorn hope let me suggest that the deciding factor may be the thawing. Take frozen fruit or vegetables. Plunge part of them in a pail of water nearly freezing, and let the rest thaw in warm air. Let the first thaw out slowly, and they will be as good as new, while the latter will be spoiled. Why not the same with bees?

A LONG time I looked with much interest at that picture of the Quinby home, p. 269. One summer in the '60's a business trip took me through St. Johnsville, and I called on Mr. Quinby. He insisted on my spending the night, and I shall never forget his kindly treatment of the budding young beekeeper. His apiary was somewhat picturesque, his hives innocent of paint. In that economy I have imitated him. The first hives I ever had—I made them myself—were Quinby box hives. His instructions in *The American Agriculturist*, continued monthly for years, were always excellent. His book was a revelation.

THE *Country Gentleman* is doing good service in championing sweet clover as a farm plant, but is behind the times on spraying. Its latest number contains an article advising to spray fruit-trees when two-thirds of the blossoms have fallen. [Of late, experiment stations and other authorities on the spraying of fruit-trees seem to be inclining toward condoning, if not actually suggesting, spraying while the petals are falling. At that time the secretion of nectar is ended, the pollen dried up, and few bees are working on the blossoms. Prof. Chenoweth of the Massachusetts Agricultural College says that bees no longer visit the blossoms when the petals are falling. At the Massachusetts Fruitgrowers' Convention last winter, the statement was made, "The blossoms of the trees fall at different times and one cannot be hanging around with the spraying apparatus watching for the proper moment for each tree." To this Prof. Chenoweth replied, "You would have to take the time when the maximum number of trees are shedding their petals and do it then. You would probably kill a few bees, but not enough to do serious damage."—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



Wesley Foster's experience in selling light-weight sections is given on page 9, Jan. 1, is helpful, and can be used to good advantage in a home market.

* * *

E. S. Miles, page 70, Jan. 15, has serious trouble with large black ants. Suppose, instead of trying to subdue with kerosene, he tries making a hole six inches deep in the top of one of their mounds, and pour in three or four ounces of carbon bisulphide and cover closely. It evaporates quickly, and its fumes are a deadly poison.

* * *

On page 2, Jan. 1, we are informed that the bee-cellars at Medina are inspected daily to determine the temperature of the air, the condition of the bees, and the purity of the atmosphere. Will the editor please tell us how he measures the purity of the atmosphere? [So far, only by our noses and by noting the actions of the bees. —Ed.]

* * *

There has been a good deal of discussion in recent numbers of Gleanings as to the desirability of making two colonies from one early in the season, after Alexander's plan for securing surplus honey. I notice that those (or most of them) who favor this way have a flow of honey in August, while those who do not favor this method depend almost wholly on clover.

* * *

With me, bees that were placed in cellar in November have wintered well, although the temperature has been most of the time above 45 degrees. The winter has been fine for wintering outdoors, but I anticipate some loss because an unusual number of colonies were quite weak last fall. We have had but little severe weather, with an occasional day when bees could fly to their hearts' content.

* * *

I think I have read somewhere that A. I. Root and Dr. Miller were trying to live to be one hundred years old. Well, there are possibilities. For their encouragement I just want to say that a man recently died in our town in his 106th year. He was a Methodist clergyman who had retired after preaching for sixty or seventy years, although he continued to perform marriage ceremonies until past 100. He celebrated his 100th birthday by preaching a sermon in one of our local churches.

With regard to the use of tartaric acid, as I said before, I find little use for it when a syrup made of two parts sugar and one of water is used, and I have fed a good deal of such syrup after the middle of October. The only objection to a thicker syrup is that, if it gets cold, as it is likely to on colonies a little weak, the bees are very slow about taking it down late in the season.

* * *

In an editorial, page 176, March 1, I read, "There is a certain advantage in having a colony during winter in a nice compact cluster. In that condition there is less activity, less consumption of stores, and no brood-rearing." No brood-rearing! Isn't that putting it pretty strong? Here in Vermont the most of our colonies in double-walled hives appear to be in that condition during the winter; but I do not remember ever opening a strong colony after the middle of February that did not contain more or less brood.

* * *

On page 56, Jan. 15, R. F. Holtermann asks if the fence around a yard of bees to which I referred some time ago is eight feet high. I could not say. It was many years ago that I saw it, and I think the fence was not more than six or seven feet high. What is more, I believe the hives were single-thickness board hives, which might make all the difference in the world. With ten inches of packing, such as they are using at Medina, I should not think the bees would get warmed up enough to fly until it was safe for them to do so. Indeed, if they could tell when it is spring I think they would do very well.

* * *

It almost took my breath away to read the editorial, page 48, Jan. 15, about sweet clover in the three counties of Kentucky. Wouldn't that be great—white clover through the month of June, and then sweet clover till late autumn? That must be the paradise of beekeepers. But when I read further on that there are already 4000 colonies in one county I began to feel as a lady did who wanted to go into the hotel business. She said she thought she would wait till everybody died so she would have no competition. Perhaps a given number of colonies will do no better there than here. But at any rate it shows us beekeepers how we ought to stimulate the growth of sweet clover where we are.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Bees in the city are beginning to swarm. This is about as early as I have ever known swarming to begin to any extent.

* * *

The first orange-blossoms of the season opened in this locality about March 25. The main blooming period will not be on for two weeks.

* * *

When I looked at the picture of foulbrood combs on page 235, March 15, I felt like grabbing them up to put them out of the reach of bees.

* * *

Filaree does not seem to be yielding its usual quantity of nectar this season. The quantity of pollen from it is becoming a nuisance in the combs.

* * *

A writer in the *Western Honey Bee* says Nevada honey sells from one to three cents higher than California honey. On that point I am from Missouri.

* * *

I have one colony with brood in three supers, seventeen frames in all, and still spreading. I would try the much-discussed spring dividing on them if it were not that the orange is already beginning to bloom.

* * *

The "boss" slipped in on me last week. Gee! but I felt nervous. After he had gone I felt foolish over my fright, for I now have his personal permission to call him plain Ernest Root. Such a warm, open-hearted man! just one of the boys.

* * *

In a private discussion while at the state convention, on the question of whether or not bees hear, I voiced the opinion that they do hear. Since that time I have studied the question a little deeper, and have come to the conclusion that I was foolish indeed to entertain even a thought that they might not hear. Really their actions in the air, while swarming, and at nearly all times, are controlled by the different sounds of their wings, which is talk to them.

* * *

While passing the hospital on March 23 I saw a large swarm of bees entering that institution. There was no ambulance in sight nor doctors in attendance. So far as I know they were not diseased, nor really in need of medical attention. Perhaps they are to assist the rheumatic patients. As they entered near the busiest part of the building it will be almost safe to say they will operate on some one before long.

* * *

On March 13 I found a two-story colony trying to raise brood in an upper super that was nearly full of honey. To relieve them I reversed the supers temporarily. The result was five combs full of eggs and larvæ on the 23d, in addition to what they had on the 13th.

* * *

In the *Western Honey Bee* for March, Editor Bixby gives C. I. Graham a beautiful coat of whitewash, and closes an editorial by saying that all Mr. Graham asks for is a square deal. That is fair, perfectly fair; but Mr. Bixby would have a hard time in convincing a large number of beekeepers other than that, if Mr. Graham had had a square deal, he would not have shipped half the bees that he has been given credit for having shipped.

* * *

The school exhibit of the tri-counties fair as pictured on page 238, March 15, is interesting to me. We watch the little folks grow and develop, and wonder what their "bent" will be. They are a great study, and should be given some latitude of action so that they may choose a line of work for their future which they like, and are in turn of mind adapted for. One of the chief problems with boys of this day seems to be to steer them clear of the cigarette habit. With the girls it is to impress them with some sense of modesty.

* * *

Prospects are indeed bright, but we should not be too sanguine, for just such fine prospects have turned into disastrous seasons within a short time. A few days of hot dry desert winds and a dry spring will change the situation entirely. The best time to measure the honey crop is when it is ready to market. The ground is wet deeper now than at any time last year; and with sufficient surface moisture during the spring, with no desert winds, we should get some honey. The sage is a problem to me this year. It looks well—in fact, as well as I have ever seen it; but since it yielded well last year, and we have never to my knowledge had two successive good yields from the sage, it makes me feel a bit doubtful as to the outcome.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



That cover picture of Ira D. Bartlett's apiary, in the Feb. 1st issue, appeals to me from the fact that it shows the hives arranged in pairs. I have raised my objections at various times to the too common practice of placing them in long rows with a single hive to a location, and all the same distance apart. My experience seems to prove beyond a doubt that the loss of queens returning from their mating-trip is far greater because of the fact that the queens are less able to locate their own hives when they are all alike. This is obviated to a great extent by setting them in pairs, even when they are in long rows. I prefer to have them in groups of fives, partly in the shade of a tree or where there are several trees close together, facing three hives to the southeast, one to the southwest, and another on the opposite side facing to the northeast. Enough room is left between the backs of the hives and the tree or trees to allow free operation with the hives from the rear, and out of the flight of the bees. I call attention to this matter at this time so that others may try it when setting out their bees this spring in the North, or for those who may wish to rearrange their apiaries in the South. I have had several enquiries on this subject lately.

* * *

"BUY MORE COTTON" OR "BUY MORE HONEY"?

When the cotton farmer was so "hard hit" by the outbreak of the European war every effort was made to relieve the strenuous situation that affected almost every industry and every vocation to some extent. One of these movements was the "Buy a Bale of Cotton" idea, and many bales were taken care of in this way.

The writer soon learned, not only from his own experience as an extensive producer, but from many other sources, that the beekeeper is suffering from the effects of the war upon the honey markets, especially in the South. It was soon realized that the beekeeper, as a producer, was affected very much as was the cotton producer; and if the "Buy a Bale of Cotton" movement was doing the latter some good, why should not a "Buy a Pail of Honey" movement aid the beekeepers?

It is not too late for a campaign of this kind even now. There is much unsold honey, and the end of the war is not yet; so that I feel the conditions will not meet with a material change for the better for some time. Especially true would this be if we experience another large crop this year, for which the prospects in Texas, at least, are most excellent.

* * *

THOSE COVER PICTURES.

Speaking of the cover pictures as they have appeared on the front cover of GLEANINGS for some time, I agree fully with Prof. Newell, p. 134, Feb. 15, in hoping that this type of cover may not soon be discontinued. These not only help to make GLEANINGS look more beautiful, but the pictures the editors have used have been interesting and of an instructive character in one manner or another.

With special reference to the illustration of the experimental apiary near College Station, Texas, by Prof. Newell, I feel that Prof. Newell would not have the readers, and especially beginners, infer that he would have them adopt in their own apiaries either the arrangement of the hives, the methods of keeping records, and one or two other features shown in this picture. I have already raised objections to setting hives singly and systematically in rows or in hexagonal order. This experimental apiary is arranged in this manner.

Although the manner of keeping records of the hives as shown is excellent for experimental purposes, it would be rather impractical to employ on a large scale or for many hundreds of colonies. While the white-painted and numbered-stake plan is a good one in some respects, the stakes are rather expensive in the first place; and in keeping up the numbering properly on account of the comparatively rapid decay of stakes driven in the earth I should prefer to keep the number of the location on the hive-body itself, and for this purpose I have a hive number that surpasses any that has been brought to my notice so far. This has been shown in GLEANINGS, but it seems to me it was not fully understood. It is very simple, made of galvanized iron, is very cheap, easily made, and hangs over the hive rabbet, and is held firmly in place by the supers or cover set on it. It is easily shifted from one hive to another when there is occasion to take the hives to another location. These are more satisfactory than the stakes, and are not in the way of the operator.

The manner of indicating certain conditions of the colonies by means of bricks on

top of the hive-covers is an old plan that I once employed myself while carrying on experimental work at College Station, and I had hanging in the honey-house a chart showing the meaning of the different positions of these bricks on the hives. The first cost of the bricks is rather expensive, however, and it is a lot of trouble to lift off and replace the great number of heavy bricks every time a hive is to be examined. Of course, the argument may be advanced that these bricks serve the additional purpose of holding down the covers against being blown off by strong winds; but I have preferred the use of slightly heavier covers, or such that are so constructed that they can not be blown off easily, and that can be lifted off with one operation. I still adhere to the manner of indicating the condition of the colonies on the hive-covers, but use small stones or pebbles that can always be picked up in almost every apiary. These cost nothing, and serve the purpose just as well.

* * *

THE EMERGENCY AND GENERAL TEXAS FOUL-BROOD APPROPRIATIONS.

Governor Ferguson has just signed today, March 18, the emergency foul-brood-appropriation bill of $3000. This is purely an emergency appropriation for this year, and to precede the general appropriation requested by the Texas Experiment Station in the budget for the next two fiscal years beginning Sept. 1.

No appropriation was made by the Thirty-third Legislature for this purpose, owing to the fact that this was by some mysterious manner left out of the appropriation budget altogether during its passage through the legislature. Owing to the fact that the general appropriation would not become available until after Sept. 1, this emergency appropriation will permit the work to be taken up again immediately where it was left off over a year ago.

The amount asked for in the budget of the experiment station is $10,000 for each of the two fiscal years, 1914-'15 and 1915-'16. This is a larger appropriation than has ever been asked for such purpose, or that has been made by any other state. It is intended to use a larger amount of money at one time with the determination to eradicate the disease from the state rather than to carry on the inspection work in the usual and more or less inefficient manner year after year with smaller appropriations. It is believed that this will prove by far the better plan, and cost less eventually. With the disease once wiped out, proper quarantine regulations established and enforced, and then followed up with smaller appropriations more easily obtained thereafter, seems to be a superior policy with which to cope with the monstrous task of dealing with foul brood.

Although the members of the present legislature have begun to understand the great importance of the beekeeping industry, and the great need of ample appropriations of money with which to combat foul brood and other bee diseases, it is impossible at this time to say whether they will grant as large an appropriation as is sought for this purpose in the experiment-station budget. If they only knew the gravity of this question, and the effect the presence of this disease has in retarding the beekeeping industry, there would be little hesitation. Most of the members know little or nothing about this matter. They are not beekeepers; and even many who have bees of their own, or those who have neighbors who may be even extensively engaged in this pursuit, do not know the seriousness of the situation as we do. It behooves us, therefore, as I have said in this department before, to call their attention to it. The appropriation bills will come up in the special session, which convenes April 29, and there will be plenty of time for Texas readers to write to their representatives and senators after they get this journal, and before the legislature meets again. Even if one has already written them, it will be well to call their attention to it again for the special session.

In conclusion I feel grateful indeed to the members of the Thirty-fourth Legislature for already so willingly granting the emergency appropriation that is now available, and I hope they will give further due consideration to the regular appropriation.

* * *

BEEKEEPERS AND LAW-MAKERS.

The Texas legislature has at least one beekeeper among the membership this year. "Beekeeping" is given as the occupation of this member, and I know that this is the sole occupation because I happen to be that member. It has always been my utmost endeavor to place beekeeping on a higher plane, and much of my time has been devoted to efforts in this direction during the last fifteen years. Of course, to many it will occur as to whether "mixing beekeeping with politics" is lifting our beloved industry to higher planes. I would have it understood, however, that I do not desire to be classed with the "professional politicians." It is my desire to remain just a plain common-sense representative of the people who have chosen me to represent them.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



QUESTIONS ANSWERED.

Can you tell us how a queen makes the noise in piping? My neighbor beekeeper says that the noise is made with the wings, but I am somewhat in doubt.

I have watched virgin queens many times when they were in the act of piping, and never yet saw one standing up with wings "purring and fluttering," as I was told they did when I first began keeping bees. One day, when I heard a queen piping quite vehemently, I carefully lifted the frames till I came to the one she was on. In later years I found out that such careful lifting is not required; for when a queen is really in earnest she will go on with her noise, even when the frame she is on is handled quite roughly.

A piping queen does not stay long in one place, but is like the seventeen-year locust which sings her song on a limb of a tree and then goes to some bush or fence-post to sing the same song over again. So the young queen will run about among the bees for a little, when she will suddenly stop and crouch upon the comb till she apparently lies as flat as possible, when the head is slightly inclined upward, or off from the comb, and the piping sounds uttered. This seems to require considerable effort, as there is a tremor throughout the whole body.

From almost hours of watching I have never known any queen to pipe unless she stopped and thus arranged herself on the comb, nor have I ever heard a "pipe" from any queen while she was on any other place than a comb. I thought the comb was necessary, so that the feet might lay hold on the inside of the cells, but had to give that up, for they perform this operation on smoothly sealed honey, or on sealed brood with apparently the same effort as on unsealed cells. I never saw a queen pipe without a slight incline of the head upward, nor without an apparent stiffening of the whole system and a slight tremor of the body.

Just how the noise is made I was always at a loss to know. The noise sounds very much as if a tiny saw were wrestling with a tiny splinter, only the first noise is much longer drawn out than those which follow. Then the interval between the first and second notes is much longer than are those which follow in rapid succession up to five or six, according to how long the queen has been piping, and how enraged she becomes from the quahking of one or more queens in their cells which are being held as prisoners there, awaiting the issue of a second, third, or fourth swarm. I have no idea as to how the queens quahk in their cells; but certainly this cannot be done by any fluttering of the wings. Who can tell us more?

How can I tell whether a colony has a laying worker? I am told that such workers lay only in drone comb. Is this right?

Doubtless laying workers use drone-cells more largely than they do worker-cells, but they will use either, and more often prefer a queen-cell cup than any other kind of cell. Then laying workers generally place more than one egg in a cell, while a fertile queen rarely ever lays more than one egg in a cell, unless it is at a time of few bees in early spring with a sudden and generous supply of pollen. At such times a prolific queen will often lay two or more eggs in a cell. But no one who has carefully examined to know how a prolific queen places her eggs in the bottom of any cell, with each standing on end as if glued there, will be "caught napping" regarding the eggs of laying workers. They attach their eggs in all manner of ways to the sides and bottoms of the cells, and often put from three to ten in any queen-cell cup that may happen to be in the cluster of bees where such are laying. Then these eggs lie about in different angles to the base of the cells, so that even the inexperienced have a suspicion that something is wrong.

Are large colonies more liable to swarm than small ones? I am told that they are. But I read that large colonies are needed to get good results in surplus honey.

I think there may be a misunderstanding in this matter regarding large colonies. With a large hive, say one holding twelve Langstroth frames, or a hive containing 2500 to 3000 cubic inches, a colony in such a hive will not be as much inclined to swarm as will a colony in an eight-frame L. hive, or one holding 1800 to 2000 cubic inches. Now, in the usual way of speaking, any colony in the large hive will be called, four times out of five, a large colony, while the one in the small brood-chamber would be called a small colony; and under this rendering the small colony will be more likely to swarm than the large one. But with the same proportion of bees as to the number of cubic inches, I have never been able to see much difference as to the inclination toward swarming. Of course, with each hive proportionally filled with bees, the swarm issuing from the large hive would be large.

GENERAL CORRESPONDENCE

THE HIGH AVERAGE OF SUCCESS IN BEEKEEPING

BY CHALON FOWLS

Of the recent special numbers of GLEANINGS I have enjoyed none more than the one giving the experiences of old beekeepers; and I consider the article by Ira D. Bartlett one of the very best. In reading how he worked up the business from nothing to five hundred colonies one grows enthusiastic about the possibilities of beekeeping, and we suppose the confiding and optimistic imitators will expect to read at the close something like this: "Go thou and do likewise." But, alas! we read, "It is said ninety per cent fail in the business." O Ira! how could you? Now, "honest Injun," did you ever believe that rot? Well, I never did, and I am getting tired of hearing such loose statements referred to as though they were established facts, and I will undertake to show that in my locality, at least, such a characterization of failures in beekeping is wide of the mark.

In the first place, what constitutes a beekeeper as the term is used in our journals? Manifestly, it does not mean a person who owns a dozen colonies or less. As well call every farmer who has a like number of hens a poultryman. There are many farmers who keep a few bees who have a hundred times more capital invested in their farm or stock, and also spend a hundred times as much labor on them. So I will leave those out of the calculation.

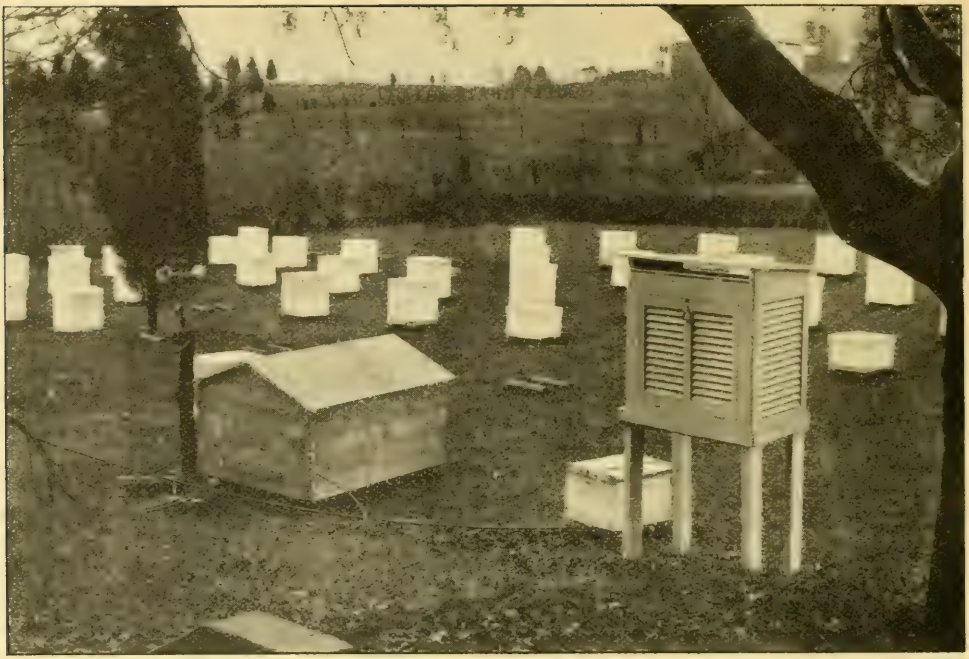
But in our own county (which I consider an average one for this part of the state) during the thirty-five years since I commenced, I can recall only twenty who have had forty or more colonies, and of these only two I would say did not succeed. And these failures I would attribute to the men and not the business. Of the others, five have been removed by death, three discontinued on account of old age, two sold out their bees to engage in other business, and eight are still engaged in beekeeping, and are making it pay. Of the latter, all but two have combined general farming or fruit-growing with beekeeping. It follows, of course, that their attention was divided between the occupations. Yet, although these were not true specialists, there is no question of their success. I cannot give figures to show just what profit these sixteen men made for the time and capital invested; but as I was personally acquainted with most of them I know they were making it pay, as may be inferred from the fact that they still keep their apiaries, or did until old age or death intervened.

I do not claim that this list is complete, as there may be others living at some distance from me that I don't know of; but I have no reason to suppose that the addition of such beekeepers to my list would make the average very much different. Of course, just as in raising other food products there are some who make a better showing than others. But I believe a large majority are making more money for the time and capital invested than is made in most of the other lines of food production.

Looking to the future, I consider the outlook good, both for securing good crops and realizing good prices. Here in our locality in the past our crops have been principally white clover and basswood; but now, although basswood is nearly gone the loss is more than offset by the increase in alsike clover, which so far has never failed to furnish a crop of honey.

But it will be argued, if people are encouraged to engage in the business will not there be an overproduction that will ruin the market so that a person cannot be sure of making a living at the business? I answer, no. The consumption of honey is increasing much faster than the population, and I think a very large part of our future market is yet undeveloped. We have a lot to learn yet in the way of advertising. As a pointer to show an awakening of interest in our product I will mention that I have just received an invitation from a large jobbing house to give an address on bees and honey before their traveling men. This was entirely unexpected and unsolicited. Of course I accepted. I told them I would be "delighted." This, of course, shows that the great jobbing houses are becoming interested. Then the local or home trade shows just as healthy growth. It is a fact that there is more honey sold at one store in my home town now than there was in the whole town (with perhaps a dozen stores) thirty years ago.

Some are in the habit of saying that honey at present prices is too much of a luxury to come into general use with the masses. But what about the breakfast foods? It strikes me that ten cents a pound is a pretty stiff price for wheat; yet the



Government apiary at Somerset, Md., showing the electric cables used in recording temperature, wind, velocity, etc.

masses are paying it, and why? Because they are coming to believe such preparations are healthful, and they will use honey for the same reason when it is properly brought before them. I understand there has been a large increase in the production of extracted honey of late years, yet I do not find it has resulted in lowering the price. Referring to the market reports in GLEANINGS, I find the Cincinnati market report for February, 1915, for clover extracted in cans, ten cents; February ten years ago, seven to eight cents; February twenty years ago, four to seven cents. Although this does not show all the fluctuations, it is a fact that the prices are better now than twenty years ago.

To show further my faith in the business I will say that my son, a young man of twenty-four, is giving up a good position in the city to engage in some outdoor employment, and, with my encouragement, he will take up beekeeping. Shall I tell him that ninety per cent of those who engage in this business fail? No! I would rather quote from an optimist like my old friend H. R. Boardman. In a private letter that I received from him during the past year I find these words—and I am sure he will not object if I quote them here: "If I were only a young man of twenty I would just be delighted to engage in beekeeping."

Oberlin, Ohio.

THE ELECTRIC CONNECTIONS IN THE GOVERNMENT APIARY, WASHINGTON, D. C.

BY E. R. ROOT

The accompanying illustration gives a view of the Government apiary in the suburbs of Washington, D. C., at Somerset, Md. The reader will notice sundry wire cables running to the quadruple packing-case containing four colonies, and to the two or three single-walled hives, each containing a colony. These cables are connected with electric thermometers from which readings are taken, taking the internal temperature of the colonies. The hives in the background comprise the regular Government apiary; but these are not connected with the electric apparatus for recording temperatures. Just a little to the left of the quadruple packing-case, and in line with

the evergreen, is a Government anemometer. Electric wires run from this to the building where records are taken of the velocity of wind, because this has a great deal to do with the wintering problem and with the internal temperature and external temperature, as well as with the temperature surrounding the cluster of a colony of bees.

The little latticed structure shown in the right foreground is what is called a "weather-bureau shelter." Its purpose is to protect weather-bureau instruments from sun and rain, and at the same time leave them subject to direct atmospheric changes. One of the instruments is a thermograph for recording temperatures, and the other a hygrograph for recording humidity. These outside weather conditions are used for comparison with the internal cluster temperatures as taken through the cables to the hives and recorded inside the office.

THE ISLE-OF-WIGHT DISEASE; HOW IT MAY BE HELD IN CHECK

BY A. H. BOWEN

There are few English counties in which the dreaded Isle-of-Wight disease has not appeared and spread with unabated vigor, and fewer still are the hives it has left intact after its deadly course has been run. Moreover, it takes all the skill and energy of the large hive-owner to keep on keeping bees in spite of it. It seems useless to wait patiently for the perfectly immune bee to turn up; for while this is being done the malady is getting ahead of beekeepers, and devastating their apiaries right and left.

There is little hope of a permanent cure being established, for the simple reason that no one knows he has the disease until the bees are flopping about on the ground and dying rapidly in front of their hive. Stocks in such condition are beyond any possible treatment, and few there are indeed who can detect the trouble in any earlier stage than this. Usually the strongest and best colonies succumb first, owing, no doubt, to the greater amount of diseased honey that is brought home; and the apiarist who is well informed on diseases could, by watching carefully the first few crawlers, with abdomens swollen and wings split, collect enough evidence to prove the case without waiting for the bees to die by the hundreds before the colony is destroyed.

It would seem that the greatest move that can be taken in checking the spread of disease is to tackle the means by which it is conveyed from hive to hive and apiary to apiary. Beebooks tell us that the Isle-of-Wight malady is spread by the water in pools and other drinking-places where healthy and diseased bees are wont to visit; by the passage of drones from infected to clean colonies by the carelessness of the owner in not keeping himself or his tools thoroughly disinfected; and also by robbing. For myself I have enough evidence to convince me that robbing is responsible first, last, and every time.

Since the days of the old straw skep the keeping of bees has increased fourfold. Both hives and apiaries are more numerous than ever; and in favorable localities they follow each other in a continual chain running for miles. When the Isle-of-Wight disease appears it soon spreads from one to the other, and in a manner that shows plainly that robbing is responsible.

As soon as a colony is first attacked by the Isle-of-Wight disease a general disinclination to work becomes noticeable. The bees loiter about on the alighting-board, and the hive is no longer the scene of activity it formerly was. Soon the colony dwindles, at first slowly and then more rapidly, until none but the youngest bees are left.

The combs are generally full of stores, and a hive in this condition contains enough disease germs to infect a county. Frequently the unsuspecting owner sees nothing amiss until the stock is set upon and robbed out completely. Sometimes the trouble is noticed; but the beeman—loth to destroy the few hundred bees that remain—leaves the stock alone, hoping the bees will pull round; and so the robbers do the work that he himself should carry out. Quick action is what is needed most. When a hive shows the first symptoms of disease the bees should be destroyed, and the entrance closed securely until the interior can be dealt with properly.

This can be done with cyanide of potassium, or by a charge of lighted sulphur burned under the frames. It might be worth while to use sulphur and so save the honey, as cyanide renders it poisonous. The combs can be rendered into wax; but the dead bees, quilts, frames, etc., must be burned, and the hive thoroughly disinfected.

The chief means of infection is thus quickly removed before harm follows, and it may be that this will end the trouble—if not permanently, at least for some time. As



A Cheltenham skeppist and his home where honey is retailed.

regards precautions it is better to have many apiaries of a few colonies than many stocks in one apiary.

With bees scattered, it is much easier to control the spread of disease, while there is always a chance of getting a crop of honey from the healthy stocks. The common practice of exchanging brood and super combs at extracting or any other time is to be condemned. It is a simple matter to number both hives and supers, and return the combs to those from which they were taken.

Syrup fed to the bees should always contain some strong medicinal agent, while the best winter food for disease resistance is sealed honey and medicated syrup, half and half. Izal is reported to be an excellent preventive of disease, and useful as a disinfectant for washing out hives, etc.

It is the duty of every enlightened beekeeper to hunt up his neighbors to see if their bees are clean or diseased, and to help them in applying the same treatment or precautions that he himself is taking. Happily there are signs that greater care is being exercised all round; and if the Isle-of-Wight disease has the effect of waking up beekeepers to their full responsibility, the losses through this and other causes will be reduced to a minimum, and it may yet prove a blessing in disguise.

A HILLSIDE APIARY.

One of my out-apiaries on the Cotswold Hills is situated in the heart of the sainfoin country, and the honey is very light in color and of a most delicious flavor.

We get but few bee-flowers till May is out, so plenty of honey in the autumn is necessary to carry the bees through the winter and early part of the year. A sheltered position and a good honey-house are two things of importance in out-apiary management, and this yard is well situated for both.

The other picture is that of a quaint Cotswold cottage, the home of a skeppist whose rustic bee-garden of straw hives is to the right of the house. This is also the village postoffice and general store, where quite a lot of honey is retailed over the counter.

Every lover of nature enjoys the Cotswold Hills with their delightful views and picturesque hamlets. An air of quietness always seems to rest upon them, and they are far enough away from towns still to retain much of their rustic beauty.

Some of my pleasantest memories are of the hills on the hot, sleepy afternoons of summer with the rich flat meadows and



An air of quietness belongs to the Cotswold Hills.

bare green downs in the distance, where the brown cattle chewed noisily around me, and the weeds wavered darkly and indistinctly in the bed of the stream by the old mill.

There was a little wood through which the water flowed, and one could esconce himself behind bushes, while the trout leaped out at river-flies, and the reflected leaves shimmered in the pools.

At last the long day would wear to a close, and the water ripple on, golden in the sunset, with wonderful reflections and dark-green shadows. Then one would wander back to the high road through a peaceful stillness in which the buzzing of insects and the movements of the cattle seemed almost painfully loud, and while the last beams of sunset caressed the dark pool beneath the glimmering weir.

Cheltenham, England.

EDUCATING THE PUBLIC TO THE USES OF HONEY

BY HENRY REDDERT

The average person knows too little about honey. Some time ago I had a conversation with a honey-dealer who disposes of about a million pounds a year. Among other things he said, "It is true that not enough honey is used by the public, considering the production." The greatest amount of honey consumed in this country is handled by dealers and brokers. They set the price according to their sales. How shall we educate the public?

We see large posters on fence and billboards lining the city streets and country roads, advertising syrups of all kinds, newspapers and magazines advertising the merits of sweets for the use of the household, but seldom if at all does one see a sign of any kind lauding the uses of good pure honey. If it does, it is always in connection with some concoction. No wonder people know of honey only as a cold-cure or the like. This cold-cure business is not big enough to consume the large bulk of honey produced every year, neither does it convince the public that honey is a food.

If honey could be placed on the table of every family, and used as other sweets, as it should be, no beekeepers would have occasion for complaint as to the disposal of their crops at a fair price. In small towns with only a few scattering beekeepers, and the inhabitants of average intelligence, the honey produced can easily be disposed of;

but in large centers of population people know of honey only by hearsay.

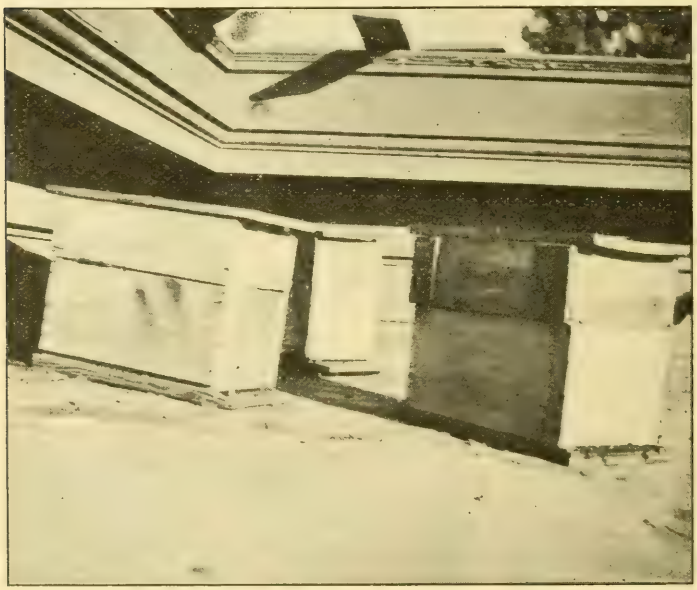
Here lies the key to the problem. Who will open the eyes of the public? How can we teach the public that honey is the best of sweets? How can we make them understand that children fed on honey instead of glucose and the like will have stronger kidneys and be healthier as they grow up? I'll answer the questions. The farmers' institutes, through the farm and home journals, and county and agricultural papers, should push the uses of honey in all cases where sweets are consumed. Teach the students in colleges and schools that honey is the one true sweet that nature affords, which cannot go wrong if properly used, provided it is well ripened and seasoned by the bees.

Cincinnati, Ohio.

THE "OUTLAW"

BY HIMSELF

On Christmas day, 1914, I took a walk in the park and noticed that there was considerable eucalyptus in bloom; and, although the day was a little chilly, still there were quite a few bees at work on the blossoms. I examined some of the bloom and found that they contained drops of honey almost as large as drops of dew, proving that, for the eucalyptus, warm weather is not essential to the secretion of honey. The walk also brought to my own mind the fact that, while I again became a beekeeper by the merest accident, yet I have as much interest in bees as ever.



The outlawed apiary, far from prying eyes.

It is now a year since I related the manner in which I became a beekeeper by finding the small after-swarm on the pepper-tree bough; of the city ordinance prohibiting the keeping of bees; and the manner in which I, in my desire to avoid trouble with the authorities, was at last forced to cache my hive of bees on a roof.

The year has been a fairly prosperous one for me. My one colony was increased to three; and while I did not give them the attention that they might have had, by reason of the difficulty involved in obtaining access to the spot where the hives were located, I nevertheless secured something like 150 pounds of comb honey, this honey being in the form mentioned in another article.

But to finish the day, this Christmas of 1914 I went up on the roof and overhauled the bees (think of that, you anchorites of the snow-bound North). I found that one of my three colonies was at work. This colony was doing quite a little comb-building and storing considerable honey. I took off three frames, a total of about twelve pounds, from that colony. This honey had been gathered within the previous six weeks, and by one of the increase, the queen being a daughter of the queen in the original colony. The two other colonies seemed to be loafing and were storing no surplus.

As to the picture, perhaps some person may take me to task for the manner in which the hives are arranged. To such I wish to say that the arrangement or position shown in the picture is not the regular

position that they occupy, but is just a pose that they assumed for the occasion, the reason being that I could not get them all in the picture when the hives remained in the position they regularly occupy. So I moved them up together so that they could have their pictures taken and all appear in one family group.

As to the coming season, I have decided (that is, for the present at least) that I will increase from the three colonies to six, and have been debating in my own mind from which colony to rear queens for the increase, and have about decided that they shall be from the old queen. While it is true that, at the time of writing this, the old queen has produced no surplus honey for a period of two months, and that one of her daughters has been doing good work during all that time, the question still remains in my own mind whether the mother is not more apt to produce queens the equal of this daughter than is the daughter to produce queens of her own equal. I will state, though, that I am still open to conviction; and if some of the wiseacres can convince me that I have better chances of obtaining queens of the desired quality from the exceptional daughter than from the mother, I am ready to change my contemplated procedure.

SWEET CLOVER ON PEATY SWAMP SOIL

Two Good Crops the First Year from the Seed

BY HENRY STEWART

For a number of years I have been producing sweet clover mainly on peaty swamp soil. Those familiar with this soil know that it is usually very deficient in potash, is very loose, and ill adapted to raising other crops; but we have here no soil on which sweet clover does better. In February last, Stewart & Hansen seeded fifteen acres to white sweet clover. The soil was very loose and ashy, and some of it so deficient in potash as to produce no corn without fertilizing. This seeding was done on oat stubble by simply scattering fifteen pounds of unhulled seed per acre on the snow—no inoculation, no fertilizers, nothing—only scattering the seed. The stand was perfect. The soil on four acres of the fifteen was extremely loose and ashy. On this section during the severe drouth in May and June the plants suffered severely. The first cutting was merely clipped to destroy the weeds, and left on the ground. The rest, when cut July 13, was a heavy stand and stood from twenty to thirty inches high. When the second cutting was made, September 20, the plants on the loose section had developed their roots and were thrifty, and yielded a fair growth of choice hay. On the rest of the field there was a growth even larger than the first cutting; in fact, it was too large. It was the mistake we made with each cutting in letting the growth get too large and begin to become woody. The first cutting should have been made as early as July 1, the second in August, and the third in October, and we would have secured a better quality of hay and a larger tonnage.

I have been seeding sweet clover with oats on this loose ashy soil for a number of years. It does not always secure a perfect stand, but it always produces much elegant fall feed; and with a good stand and favorable weather conditions it frequently affords a good cutting of hay. When the roots are fully developed on this loose soil, nothing will beat the rapidity of its growth. Many fully developed stalks will attain a height of ten feet.

Our peaty loam ranges from two to six feet deep with a clay subsoil; and, as is always the case under peaty loam, this subsoil is very rich in potash. I may be wrong in my conclusions; but it is very clear to me that the reason why sweet clover can thrive and make such a wonderful growth on this peaty soil on which other plants fail is owing to its deep root system. While surface rooting plants are famishing on this loose soil for want of nourishment and moisture, sweet clover with its deep roots is thriving on an abundant supply far below the reach of the roots of other plants. The root system of sweet clover is enormous. There probably is no field-crop plant that will send its roots so deep and so completely fill the ground with roots as will sweet clover. This whole root system dies the second year of the plant's life, and goes back into decay. If it is true that this root system is built up from potash secured from the subsoil, and from nitrogen secured from the air, then the decay of these roots must not only add nitrogen but must also add potash and other mineral elements as well, and will materially help the soil to farm out and become better, as soil experts

tell us is the case from decaying plant roots on shallow peaty soil.

There is a thought here worth considering; for any plant that will work our potash-mines free of charge, and produce profitable crops, will go a long way toward reclaiming the fertility of this land, and beats securing the potash from the German mines at the present war-time prices.

DIFFERENCES IN GERMINATION OF GOOD SEED.

Last winter I became very much interested in testing sweet-clover seed for germination. I secured as many samples of seed as I could, and secured germinating tests from them. It was really interesting, as but few of these showed a germinating test of 50 per cent, and some as low as 20 per cent, but it was clear that this was not caused from poor seed, as there was practically none rotted; but the ungerminated seed was as hard as little bullets. I soaked one sample for six weeks without phasing this hard seed. I then removed some of the seed and cracked the shell, and in three days they were swelled to three times their original size, and sprouted. I secured one sample, however, that in three days showed a germinating test almost perfect. I procured some of this seed and seeded with oats and secured an elegant stand.

Now there is no question about the great difference in seed, and that this hard seed has much to do with poor stands on spring seeding. But that this hard seed can not be considered poor seed, there is no question; but the question may be, "Which is the best?" The possibility is that each is best in its proper place. For spring seeding I don't believe there is a question as to the superiority of the easily germinating seed.

For ages sweet clover has been an outcast, and it has been a case of the survival of the fittest. In its wild state the seeds of sweet clover fall on the ground in August and September, and but very few of them germinate, but they lie there, resist the rain and sun of autumn, and, like heartsease and many other weeds, do not germinate until spring. It is barely possible that for pasture or for permanent growth this hard seed may be a blessing in disguise. The easily germinating seed may all germinate out of season, and the tender plants be killed by the frosts of winter.

There are many things about this new but old plant yet to be fully understood.

Prophetstown, Ill.

EFFICIENCY IN APIARY OPERATIONS

How to Do and How Not to Do. II.

BY R. F. HOLTERMANN

Fig. 1 shows two students standing over a hive. One is smoking the bees, the other removing or inserting a comb. They are standing. To do this with one hive would probably make no great difference, although the principle is wrong. But when it comes to do work in this way hive after hive and hour after hour—yes, day after day for a season—it makes a very great difference between this method and the best method.

Fig. 2 shows the one who is manipulating the combs properly seated on the edge of a hive-cover; but the one who is doing the smoking is standing—a waste of energy. But he is doing something else which is decidedly wrong. Now let the readers of GLEANINGS, especially the beginner and the thoughtless, not read any more until he looks at the illustration and sees what is wrong. The mistake which will be obvious to many is that the one operating the smoker is standing right in front of the hive, preventing the field bees from entering it. I have had students with me for a considerable time who, after being reminded of this mistake, still did this; and in confidence let me say that, at very long intervals, when much preoccupied I can be seen doing this my-



FIG. 1.—Standing up—a waste of time in the long run.



FIG. 2.—Puzzle picture: Besides standing, what other mistake is one making?



FIG. 3.—Comfortable and convenient—no wasted energy.

self; but this does not make it any more correct. When a person tells me that something I have done does not square with scripture teaching I always say I am thankful for this much, that my conduct does not change the teachings of scripture.

In Fig. 3 we have things as they should be. Both men are seated. There is no unnecessary energy expended in sustaining the body, and the hands get to the work with as little effort as possible.

Some may ask, "Is not the narrow edge of a hive-cover a rather hard seat?" Yes, but it is always convenient, and is better than none.

I have sometimes thought it would be a good plan to have a light stool, like a milking-stool, with one leg, strapped behind one. When one is working all day in an apiary it would be a great saver of time and trouble. One could then sit down anywhere without any difficulty. There could easily be a stool in each yard, or it could be carried from yard to yard.

Brantford, Canada.

HONEYBEES AS POLLINIZERS OF TROPICAL FRUITS

BY JOHN W. LOVE

The field of flower pollination and the relation of insects to vegetable biology is as intricate as it is vast. It has its traps and pitfalls for the unwary investigator, like those contrived for flies by certain ingenious varieties of orchids. Conclusions regarding the inter-fertility of common fruits must not be accepted unless based upon patient, repeated experiments. With the same caution we must guard against accepting chance assertions made by beekeepers or fruitgrowers in regard to the value of honeybees in the pollination of tropical fruits. Their agency has been firmly established among the common fruits and vegetables of the temperate zone, but, unfortunately, not so firmly among the fruits of the tropics, except the citrus.

An article by Professor E. G. Baldwin on the pollination of oranges was reviewed editorially in the March 15th issue. Two or three bulletins have been published by the Florida Experiment Station on the pollination of citrus fruits, but these are now out of print so far as I am informed. This is practically all the authoritative information on the subject. Information in regard to other tropical fruits and semi-tropical fruits such as bananas, coffee, cacao (cocoa), cocoanut, figs, olives, and pineapples is very meager.

The blossoms of the orange may be pollinated by the winds; but, like apples, pears, and cherries they are more effectively pollinated by insects, chief among which are honeybees. On dull and damp seasons their presence is necessary for complete setting of the fruit. A number of Florida, California, and Porto Rican growers are keeping bees in their orange-groves for this purpose. The honey from orange-blossoms is most delicious, and has been called "the honey of the gods."

What is true of the pollination of the



National Convention, Denver, Colorado, Feb. 16, 17, 18, 1915. For report see page 217, March 15.

orange is likewise the case in the pollination of lemons and limes, writes Mr. John Barclay, Secretary of the Jamaica Agricultural Society. Although it is extremely dangerous to reach any conclusion unsupported by tests, the guess might be risked that one other prominent citrus, the grapefruit, derives benefit from the visits of honeybees.

Porto Rican coffee-planters are becoming interested in honeybees as pollinizers of the coffee-blossom. In certain seasons, when there is a great amount of rain during bloom they are particularly useful. The wind will carry pollen only in dry weather; but the bees transfer it in wet weather from one blossom to another during their honey-gathering. According to the Porto Rican Experiment Station, a coffee-grower has stated that coffee-trees are more productive when an apiary is close at hand than when there are no colonies in the vicinity. Mr. J. T. Crawley, director of the Agricultural Experimental Station at Santiago de las Vegas, Cuba, writes, "I am informed that some coffee-growers keep bees on their plantations with the special view of having the fruit-blossom fertilized." Mr. Barclay states that bees pollinate the coffee-blossom. No comparative data have been collected. Honey from the coffee-blossom is quite delicious. The bloom lasts only about a day, but the plant is in bloom for a week at a time, three or four times a year.

The banana produces large quantities of pollen, and is freely visited by honeybees. The plant has been called the most prodigal



Convention of the Pennsylvania State Beekeepers' Association, Harrisburg, Feb. 23-24. See page 215, March 15, 1915.

Rear row heads as they come, left to right:
1. ———
2. —— Alexander
3. ———
4. H. C. Klinger, Sec'y
5. G. H. Rea
6. C. C. Brinton
7. John L. Du Bree
8. Mrs. ———
9. A. H. Cassell
10. Miss Kirk
11. Samuel Gochenauer
12. Jos. A. Eibel
13. Julius A. Roehm
14. ———
15. Howard H. Mann
16. Jos. P. Kirk

Front row, left to right:
1. A. M. Groff
2. L. K. Hostetter
3. ———
4. ———
5. ———
6. J. R. Rambo
7. Dr. H. A. Surface, Pres.
8. F. G. Fox
9. J. O. Buseman
10. J. S. Shope
11. C. N. Greene
12. L. B. Huber
13. A. N. Coons
14. F. J. Strittmatter
15. – ———
16. ———
17. Dr. Percival Herman
18. ———
19. ———

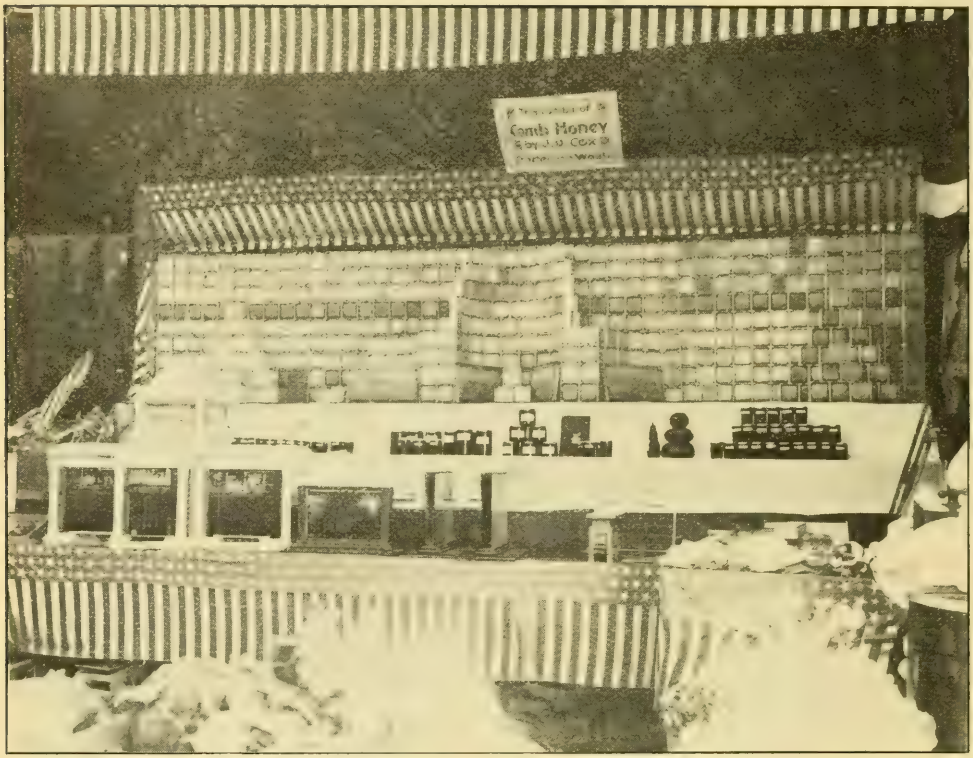


FIG. 1.—One thousand sections of comb honey from the J. D. Cox apiary.

producer of pollen in the world, one whorl of stamens sometimes yielding enough to be gathered up with a teaspoon. Nectar is secreted with equal profusion, and bees have no difficulty in securing it. Under cultivation the banana is propagated by planting pieces of the stalk and suckers. It has almost entirely lost the power of maturing seeds. When pure seed of a pure-bred plant is desired, so great is the effect of the bees and other insects that it is necessary to bag the flowers.

Bees are sometimes maintained in California almond orchards to pollinate the blossoms. If the grower wishes certain varieties, he should mix with certain others in order to secure the effect of cross-pollination. Very likely locality is important. It is wise to plant with the view both to the desirability of the varieties for market and to their inter-fertility in the locality.

Although part of the palms are pollinated by the insects, the date palm is wind-pollinated in its natural state. For the past four thousand years of its cultivation, however, man has been artificially pollinating it. The date is an example of the separation of the sexes on different trees, so that self-pollination is impossible.

Apparently the blossoms of the cacao or cocoa tree are not pollinated by bees. Mr. Barclay, of the Jamaica Agricultural Society, states that the blossoms are frequented by small insects which likely carry the pollen; but he is quite certain that cocoa is not fertilized by bees.

The blossoms of the fig are pollinated by a certain special insect of its own, a species of gall-wasp. The uncultivated form of the common fig, called the caprifig, is the male. Its fruit is hard and useless, but is the home of a small gnat-like gall-insect which, in escaping from the orifice, covers itself with pollen. The female runs to the young blossom, which it enters to lay eggs, and in doing so effects the fertilization of the blossom. Were it necessary to produce the fertile seed of the fig, male trees, or caprifigs, would have to be planted close to the female fig-tree.

A PACIFIC-COAST HONEY EXHIBIT

BY W. L. COX

Here are some photographs of honey and bee exhibits at the Chehalis (Washington) county fair.

Figs. No. 1 and 2 show 1913 exhibits. The reader will observe Fig 1 bears a display card with the name J. D. Cox. Mr. Cox is my father, and owned the comb honey. One thousand sections were used. The extracted honey, beeswax, and bees were mine. The exhibit was 16 feet long.

Fig. 3 illustrates my home-made observation hive holding three eight-frame colonies. It has taken several blue ribbons.

In the 1913 program there were demonstrations each day, and short talks on bees, which proved very interesting and instructive. Several beekeepers present contributed to the program.

A part of the 1914 exhibit is shown in Fig. 3, which was taken before he had the exhibit finished, though it conveys a good idea of what we had on exhibition. The

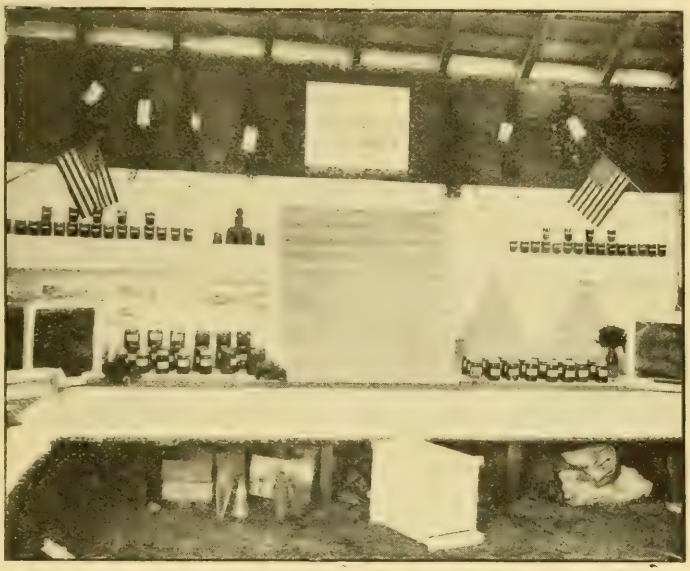


FIG. 2.—Bee products from W. L. Cox's apiary.

display was all mine except the little case of comb honey in the lower left corner. I had a corner space using 24 feet. The view shows the 16-ft. wall space containing the honey and wax. Portions of two observation hives are shown but not clearly. The end space not admitted to the photograph contained the extractor and other equipment used in the apiary.

The leading feature of this year's program was live-bee demonstrations by Master Roy Cox, aged eight years, who took the queen from a colony and carried her around for the crowd to see. He worked bareheaded and barehanded, with sleeves rolled to the elbows.

Porter, Wash.

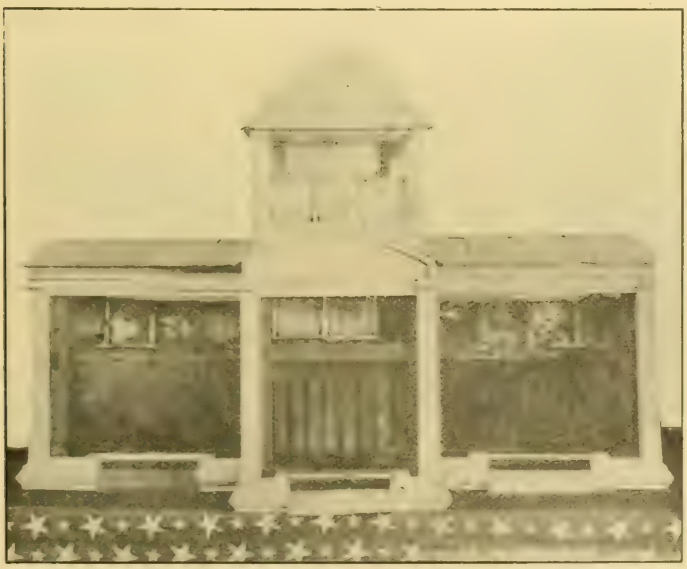


FIG 3.—Three eight-frame colonies are housed in this observation hive.



A Louisiana swamp is an unlimited source of nectar.

MAKING INCREASE IN A SOUTHERN SWAMP

BY J. D. BAILEY

My apiary is located five miles from New Orleans in the heart of a Louisiana swamp where an unlimited field of honey-plants abound. I have been keeping bees for a number of years as a diversion, but last year I moved them out to a friend's place and we have determined to increase our colonies and sell the honey. We started in the spring with fifteen colonies and have increased to forty-two, which we hope to have next spring.

The honey-house was put up by myself and a friend, both novices, at a cost of less than ten dollars, as all the material was second-hand. In the upper story our extractor, Peterson capping-melter, steam-heated uncapping-knife, etc., are located. The honey runs direct from the extractor through a large pipe to the tank-room below, where it passes through an Alexander honey-strainer, and thence into a large tank with a capacity of five barrels. From there it is drawn off through a honey-gate direct into the containers.

Besides our bees we have an assortment of oranges, grapefruit, kumquats, loquat, dasheens, and last, but not least, a beautiful feijoa sellowiana.

Our bees are building up rapidly for winter on goldenrod, there being hundreds of acres within easy range.

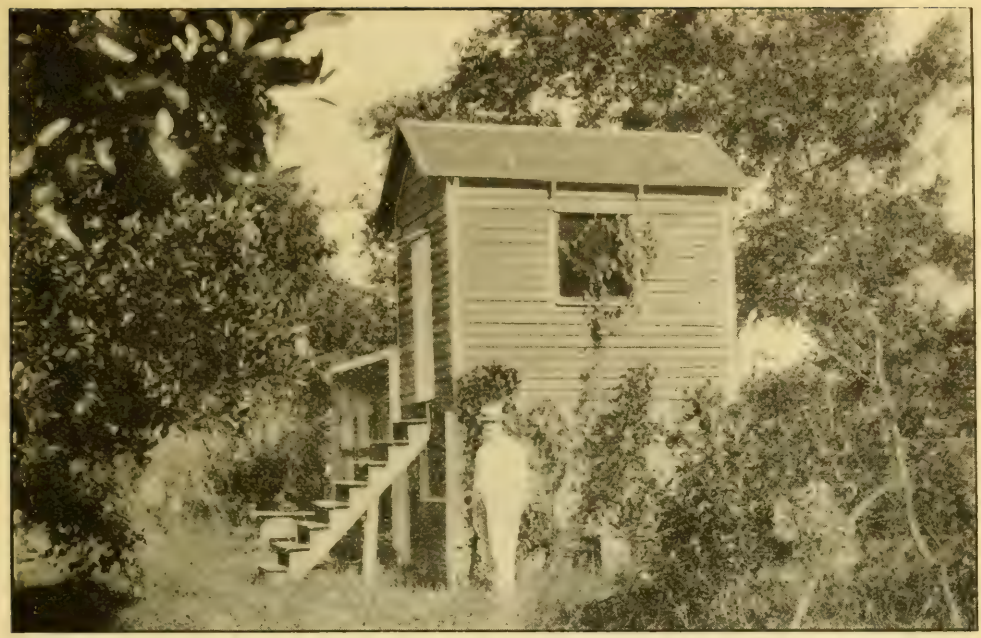
New Orleans, La.

NO DANGER THAT WHITE CLOVER HAS WINTER-KILLED

BY ADAM LEISTER

[Mr. Leister is the farmer beekeeper whose advice on clover and other topics we have sought so often. Knowing that there has been little snow in most parts of the country this spring during the alternate freezing and thawing, we asked our friend what he thought about the clover prospect. His reassuring reply follows.—Ed.]

I have made careful observations on the effects of the freezing and thawing, and heaving of clover. I can say, without hesitation, that there has never been a season with so little heaving as the present one. I hear you ask, "How do you account for this?" The observing eye has long discovered that a wet season is the most favorable condition for heaving. Since this has been an extremely dry spring, and since the season is so far advanced, the danger from heaving is entirely past.



The honey-house cost just $10.

We may look forward to more than an average crop this year, and why? Those who have to do with seeding and harvesting the clover crop know well the injury from the clover-midge. This destructive enemy has almost entirely disappeared—at least in this locality, so far as my observation goes. I am not sure if this insect affects both red and white clover, but I notice that both white and red thrive well under similar conditions. Another important factor in the conclusion is the very light rainfall for the spring months. To make up for this we are sure to get an abundance later. In summing up I will say that conditions are perfect, with about three-fourths of a stand of white clover, and a full stand of the red, with the promise of a good soaking at haying time.

Medina, Ohio.

HOW BEES IN ONTARIO HAVE WINTERED

BY MORLEY PETTIT

It is, of course, too early to give any definite report on how bees have wintered in Ontario; but letters are beginning to come in, and heavy loss is expected in all apiaries which were not carefully fed last fall. This is only what is to be feared, as the failure of the honey crop in 1914 left the hives weak in stores, and the failure to rear young brood properly the latter part of the season made most of the clusters small for going into winter quarters. To make matters worse, the outbreak of the European war caused a sharp rise in the price of sugar just before feeding time; and those who had not purchased sugar early even experienced difficulty in getting a supply at any price. Although the Dominion Government rendered considerable assistance by corresponding with sugar-refiners, and urging them to make sure that beekeepers get their required supply, many beekeepers who were not specialists decided that they would let the bees take their chances, as they had not given any profit during the season.

The few reports which have been received indicate that clover may not be in the best of condition, but they also indicate a continued live interest in beekeeping, as renewals of memberships to the Beekeepers' Association are coming in quite freely, and numerous requests are being received for information as to where bees can be purchased.

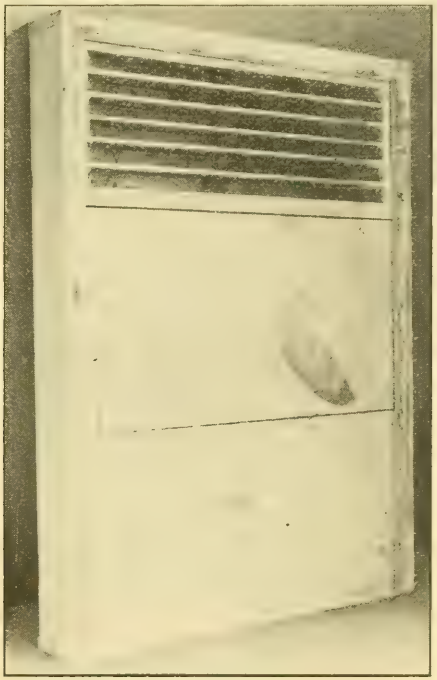
Guelph, Canada.

A CHEAP AND EFFECTIVE GROOVED FEEDER

BY E. F. ATWATER

A year or two ago Mr. Jay Smith described his "Perfect feeder," built along the lines of the old Cary feeder. We usually have some colonies that use a disproportionate amount of stores, and we usually have quite a supply of feed, consisting of boiled honey from diseased colonies or other cull honey; and so to connect the two to the advantage of the needy colonies, and to our profit, we designed and built several hundred feeder-bottoms.

As we could not spend the time to build up feeders from countless little sticks, as was done by Mr. Smith, and as no feeder holding less than a quart appeals to us as being very useful or practical, we had clear 2 x 6 lumber cut in suitable lengths for the ten-frame bottom-boards, and grooved as shown. The connecting holes between grooves are cut with a special tool.



The single clear 2 x 6 piece, carefully grooved, constitutes the feeder.

We prefer to shove the hive forward on the bottom 1¾ inches, to expose the feeder, then lay a strip ¾ x 1¾ x 16 across at the rear, for upon removing this strip the feed can be instantly poured in and the strip replaced. This can be done so quickly that no smoke is needed.

In early spring, if we find some colonies very short of stores we simply shove the hive forward, contract the entrance so only one or two bees can pass, fill the feeder with feed, and replace the strip.

Sometimes by the time we get over the yard the first colonies fed have licked up the quart of feed. Then we fill the feeders again (using a little smoke), often three times in an hour. That yard is safe for some time, and heavy colonies have not had their prospects injured by giving some of their honey to the light ones.

For regular stimulative feeding this feeder-bottom is the best. A thinner feed, and enough of it to do some good, can be given daily, or as often as desired.

In this connection we have found no considerable advantage in daily feeding except in queen-rearing, and believe that, even where regular feeding is found profitable, feeding a little more, every second or third day, will give about the same results as daily feeding.

But in any event it will pay to own a lot of these feeder-bottoms of ample capacity, as they are substantial and practical, and have stood the test of extensive use.

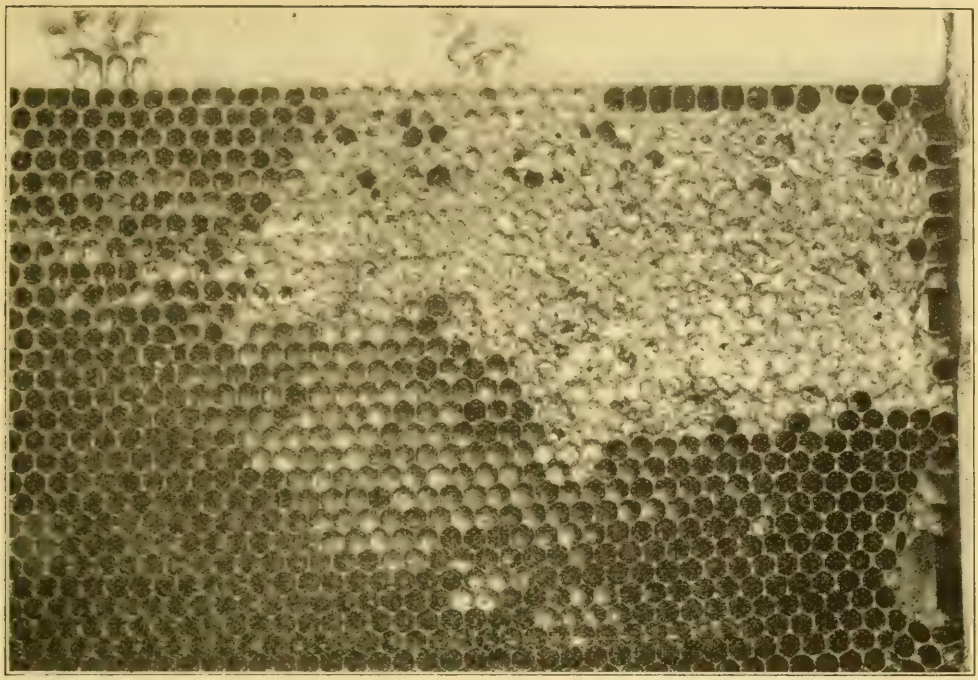
Meridian, Idaho.

100 POUNDS PER COLONY AND NO SWARMS

BY S. M. CAMPBELL

Our bees are in fine condition, and we are putting on supers. We had a swarm to-day, March 19. So far we have had 20 inches of rain, and expect to get at least 75 pounds of honey to the colony, even if there is no more rain this season. The sages are in fine condition, and should yield a large surplus.

When I was in Texas I kept 145 colonies from swarming in the year 1910, and obtained 100 pounds of extracted honey to the colony at the same time. I did not have a single swarm, and only six colonies built cells. My plan of procedure was as follows: As soon as the bees filled the outside combs in the brood-chamber I made the rounds of the apiary with a super of drawn combs. From each colony I took out the full combs of sealed honey from the outside, spread the brood-nest, and put these empty



Comb containing aster honey granulated so solid that the bees could not use it. Note the granules in the open cells at the left. These were almost like flint. The bees had gnawed the cappings from the other cells but had left the honey.

drawn combs in the middle. This gave the queen all the room she needed; and as fast as I got a super of full combs of honey I put it on top of the hive until I was ready to extract. The hives were tiered up three stories high (ten-frame hives), and at the end of the season they were full of three-banded Italian bees from the floor to the lid.

In these big mountains of California it pays to have apiaries located close together. The mountains are full of canyons with high ridges between, and the bees do not seem to fly over these ridges, nor care to go over them to the next canyon, perhaps only a mile away. For this reason smaller apiaries, say 100 colonies or so, are more logical about a mile apart. I have been in this country two years, and am satisfied that this is the best plan. In Texas or any level country, bees will fly a long distance in search of nectar, and in such localities one can keep much larger apiaries, but they must be further apart. Small apiaries are nicer to work in, however, for one can get through the yard before the bees are hardly aware of it. This is quite a big item; and then, besides, when a poor year comes the small apiary will have enough stores to winter on, while the larger one is likely to need feeding.

Most of the writers tell us to have the colonies strong when the honey-flow comes on, but fail to tell the way to keep them strong. The best way to have a hive full of bees when the harvest comes is to have plenty of honey in the combs at the right time. Very few hives have too much honey, for the bees turn the honey into brood. This point can hardly be made too emphatic to the beginner, and even the veteran would do well to give the subject more thought—making sure that his colonies have plenty of stores.

Nordhoff, Cal.

ASTER HONEY AS A WINTER FOOD FOR BEES

BY JOHN H. LOVELL

After corresponding with beekeepers from Michigan to Georgia I am convinced that aster honey, if properly ripened and sealed, can be safely used for wintering bees. Any honey, if unripe, would probably be open to objection. Mr. O. H. Townsend writes

from Michigan that he sells aster honey at the same price as that of the red raspberry, and that it has a fine flavor and a good body. He attributes its poor reputation for winter stores to its tendency to candy. Mr. Raleigh Thompson, of Underwood, Indiana, who has had great experience with aster honey, also reports that it crystallizes very quickly. It is so thick that it is difficult to extract. His bees winter finely on it with very little loss. The flowers are so abundant in his locality that the fields at times are as white as snow. Others in the central states have been equally successful. Mr. T. W. Livingstone, of Leslie, Georgia, says that it candies quickly if not sealed; but that when he lived at Dalton his bees depended on it for winter stores. Pure aster honey is nearly as white as that of white clover, but usually it is amber-hued, due to the presence of goldenrod honey or that of other autumn flowers. It is very sweet, with an agreeable flavor. Like goldenrod nectar, the nectar of the asters has at first a sour or rank odor which soon disappears.

Waldoboro, Maine.

[We have had good, bad, and indifferent reports of colonies wintered on aster honey. So far most of the reports have indicated trouble, as in the following:

> Bees wintered badly. I had them all in the cellar, but they had dysentery from the aster honey. I have lost one-third of them—my heaviest loss in 30 years.
> Solon, Ohio. H. C. LANE.

Our own bees having aster stores have shown more signs of dysentery than any colonies we ever wintered before. Colonies in the same cellar having stores of sugar syrup were clean and dry when set out.

One of the great drawbacks to aster honey, as mentioned by Mr. Lovell, is its tendency to granulate so quickly and so solidly. The illustration herewith shows the almost "gritty" appearance of the honey in the open cells. Many of the combs show the cappings gnawed away, and the honey in the cells so solid that the bees apparently were unable to use it.

Query.—Why should the solid aster honey in the cells be less available than the solid cakes of candy made from boiled syrup? See following article by Geo. H. Rea.—ED.]

STARVATION OF COLONIES ON CANDIED STORES

BY GEORGE H. REA

Reports of bad wintering are numerous this spring. The description of symptoms usually given indicates that the condition is largely due to aster honey gathered last fall for winter stores. If this honey has acted everywhere as it has in Medina, the wonder is that any bees with no other winter stores are alive.

About the middle of March the writer, with Mr. Arlie Pritchard, visited the Blakeslee yard of the A. I. Root Co. The covers of the great quadruple winter cases were lifted, and a peep taken at the clusters. The weather was too cold to do more than that, and, in fact, it has not been fit to permit manipulating colonies so far this spring (March 28).

Out of sixty colonies three were found dead. Sealed stores could be plainly seen along the top-bars of the frames in these colonies, while the bees were mostly on the hive-bottom. A small cluster in each case was still clinging to the combs. They had starved to death with plenty of stores in the hives. In fact, investigation showed that they were actually clustered on candied honey which they had uncapped but were evidently unable to consume. That seems strange at first thought. Bees will eat hard candy, but this is the hardest candied honey that I have ever seen.

The illustration on preceding page shows this hard honey in the cells.

The wonder is that these bees were not all dead. Had it not been that at that time the weather warmed up enough that they could get out in small numbers and get water, they probably would have all died.

In previous years, when feeding hard candy I have noticed that the bees would get along very well as long as the weather was such that they could get out and gather water, but would sometimes die clustered right on the cake of candy during a spell of bad weather. Bees wintered in a moist cellar will use hard candy, while they will be unable to do so in a dry cellar. In the first case the necessary moisture is supplied from the atmosphere. The same might be true outdoors in wet weather—but not when it is cool and dry, as it has been this spring.

[As mentioned in the footnote to Mr. Lovell's article above, the reports from other sources regarding the aster honey are quite conflicting. It has become evident

from the reports of past years that in a locality where the bees can fly frequently, the aster honey does no great harm. Perhaps the bees in these flights bring in the amount of water necessary. However, bee dysentery is never very bad where frequent flights are possible, and take it all in all, any bad condition brought about by poor stores would be relieved by frequent flights. —Ed.]

NOTES FROM GERMANY; WAX-RENDERING; BOILED HONEY

BY J. A. HEBERLE, B. S.

Highly interesting is what Editor Root says, page 921, 1914, about the wax-rendering station in Massachusetts. State Bee Inspector Hofmann-Muenchen has published in the *Muenchner Bztg.* an excellent article about wax-rendering in which he says that, years ago, oil was pressed from seeds with a loss of some ten per cent of oil.

For some time this method has been superseded by extracting with a solvent. The fluid solvent is condensed, and used again and again. This method needs very little care, and is, consequently, very economical. A gentleman interested in wax-rendering called the attention of Mr. Hofmann to the fact that wax could be extracted the same way as oil from seed, and more efficiently than by heat and pressure. Among the various solvents tried, benzine seems to be the most convenient.

An expert chemist has reported that wax extracted with benzine is chemically unaltered, but does lose its odor. This is considered of no importance, since by the process of bleaching the odor disappears also. [For foundation-making, wax with its natural odor will be preferred.—H.]

It has been suggested that wax be rendered as heretofore by heat and pressure, or by the solar extractor, and that only the residues from these methods be extracted by means of a solvent.

The process of extracting with a solvent is very efficient, all but about one-half of one per cent being recovered. This small remainder could be recovered, but it is not economical to do so.

A NEW BOOK ON BEES.

Notwithstanding Europe is under the reign of Mars, and "grim-visaged war shakes its gory head," there appeared the first month of this year a new scientific work about bees. The title is "Leben und Wesen der Bienen"—Life and Nature of the Bees, by Prof. Dr. H. v. Buttel-Reepen, published by Vieweg & Sohn, Braunschweig, Germany, price $2.00. The author is well known to the readers of GLEANINGS.

This book differs from the many good text-books we have. It is designed to supplement them. It is strictly scientific and impartial. Anybody who wants to study the bees—who is interested in knowing what amount of research and study the bees have been the subject of on the part of men of science, should get this book. Some 23 pages are needed to enumerate the titles of books and journals referred to in this book. In a short notice I cannot give the reader a fair idea of the contents. Especially interesting to me is the tenth chapter, "The senses of the honeybee." It is subdivided into five divisions. I. The sense of location; II. The sense of color and form; III. The sense of sight; IV. The sense of smell; V. The sense of hearing and communication.

About the sense of hearing, I have seen less in current literature than about the other senses; so I give a few items from it. Considerable study and investigation by eminent men on the subject, "Can bees hear?" has not entirely solved the question. Some say the bee has no sense of hearing. It perceives only vibrations. Others say the bee does hear. Among these is the author of the book, but he gives dissenting opinions and references. He gives a very convincing argument when he says that it seems logical to suppose that creatures which can produce a variety of sounds which unfailingly express certain conditions, that such creatures also have the ability to hear these sounds. The beekeepers know of various tones the bees can make—for instance, when a swarm is in the air; when a colony first notices the loss of its queen; when the bees have a good honey-flow; the gay hum when a swarm enters its new home; the war cry of the excited angry bee when attacking. The call of the queen first hatched, and the answer of one or more in the cells, etc. It certainly does seem reasonable to suppose that the bees hear these sounds—or *feel* them.

The scientist Lubbock has played the

violin for the bees; he blew the flute, whistled, shouted, but they took no notice of it. Others have repeated this experiment with the same result.

The scientist Ed. Hopper, an authority on the bumble-bee, holds that they are endowed with a sense of hearing, while Sladen and Wlad. Wagner hold the opposite view. Ed. Hoffer tried the following experiment with *Vespa media*, De Geer, to see whether or not they would react on sounds the human ear perceives. He hid himself in the bushes, and with a long cane he excited the above-named species by punching and shaking the bush on which their nest hung, at the same time whistling loudly. They came out of the nest pell-mell to attack the disturber. Later he needed only to whistle to bring them out, full of anger, searching for the offender they had heard but could not see.

There is still some uncertainty how external impressions are made conscious to the bees. We beekeepers cannot but be thankful to the men of science who have already revealed many of the wonders of the make-up of the little honeybee. Just think! there are 31,000 minute membrane plates with nerve fibers attached to them, called poreplates, although they have no pores at all, found in the two antennæ of the drone. The thickness of these poreplates is 0.002 to 0.004 of a millimeter, or 0.00008th to 0.00016th of one inch. Their use is uncertain. They are considered too thick to transmit odor, as gases would not diffuse rapidly enough through them. It is curious that the queen and workers have only about 4000 in both antennæ, but a little larger in size. The author of the book thinks they may help the drones to find the queen at the mating flight, since that is the only service the drones seem to render the colony.

McIndoo's work on the sense of smell, familiar to American beekeepers, is also considered. Sixty illustrations help very much to interpret the weighty contents of the book.

BOILED HONEY NOT SUITABLE WINTER STORE.

Regarding the editorial article, page 4, in GLEANINGS for January 1, I should like to say that I have often heard the opinion expressed that honey with a comparatively small amount of water gives dysentery. A colony suffering from the want of water becomes uneasy, and dysentery results. Boiling changes honey considerably. The loss of water, and the change in the hygroscopic property, are most important for its quality as winter food.

If honey for winter feeding has to be boiled I would suggest that a liberal amount of water be added, and that the honey be stirred so that it may not get on the walls of the vessel too hot while part of it is barely warm. It is usually recommended to dilute honey with water for feeding purposes, the quantity varying up to equal volumes. [We have always diluted the boiled honey that we use for feeding.—ED.]

Kempten, Bavaria, Germany.

THE SECTIONAL HIVE

BY F. GREINER

In an address entitled "Practical Side of Apiculture," delivered before the Ontario County (N. Y.) Beekeepers' Society last January by Mr. S. D. House, Camillus, N. Y., two sentences struck me as of importance. They were as follows: "We handle hives rather than frames;" and "our wide-frame supers assist us in handling the finished product rapidly." Great masters may make mistakes, to be sure. I am reminded what Dr. Dzierzon once said about the labor-saving mania of the American beekeeper. He said in substance: "As though success depended on the ease or rapidity with which hives may be manipulated, can we not employ women and children (in other words, cheap labor) to do this work?" This was many years ago. In the light of our experience of the past years, who of us on this side of the big water endorses this theory of Dr. Dzierzon?

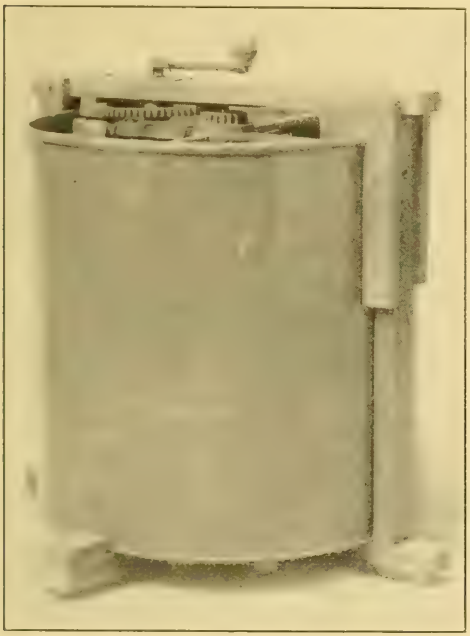
So, I say, possibly Mr. House is wrong. We hear very little said about the sectional or divisible hive, and still less about the wide-frame super. The different photographs of apiaries appearing in every issue of our American bee journals do not indicate that sectional hives are very popular. I have heard extensive and successful beekeepers say that they had a lot of the reversible sectional Heddon hives on the rubbish-pile, and that they could be had for the asking. Notwithstanding all this, one must learn to use a tool right. The best kind of razor, no matter how sharp it may be, cannot be used successfully to cut brush; and the best brush-hook is ill fitted to cut a man's beard if the bristles are never so thick and heavy. The sharpening of a razor is one thing, and that of a brush-hook another. The sectional hive is not to be used in the same manner as the standard L. hive is

used. The attempt will result in a miserable failure.

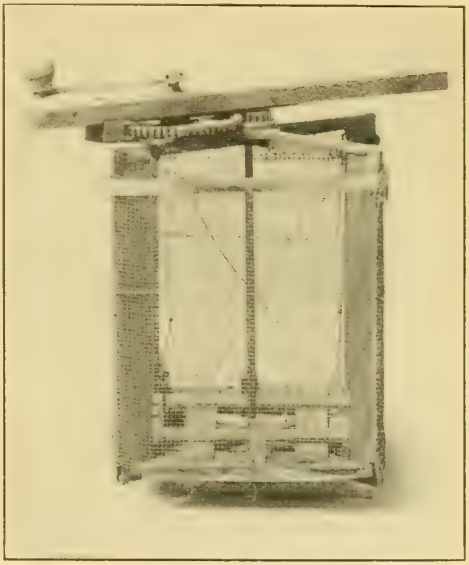
Listen to what Mr. House said about the use of his hive before the convention in Canandaigua:

"When our bees are wintered we do not disturb them till fruit-bloom, when every good colony is given a sectional hive-body full of combs. (The supposition is, every colony has been wintered on two sections, equaling all together eight or nine L. frames.) This hive-body of combs is given in between the two already occupied. The bees will immediately take possession of the combs, and they will be quickly filled with brood. We keep an eye out for the clover-bloom; and when the bees bring in honey at the rate of one pound per day from this source we take two sections of brood and honey away from each colony and give them two comb-honey supers instead. I don't want any sort of bait comb in my supers, as this would only result in pollen-loaded sections. With full sheets of comb foundation pollen will not get into the sections, and an excluder will not be needed. To free the little brood-chambers, which we wish to take away, from bees, we do not brush a bee from a comb but drive them either up or down with a few puffs of smoke. It is done quickly, and we select that brood-chamber to remain on the stand which appears to have the most sealed brood. The other two (from each hive) are placed on a new stand with entrance almost entirely closed for the time, or even closed entirely for a few days. The few matured bees left in the combs, and the newly hatching bees, will soon be able to take care of the young brood, although some of the youngest may perish, which is of little account. When increase is not desired the brood-chambers so removed full of brood can be utilized for strengthening weak colonies; of if none are on hand they may be allowed to stand until they have a young laying queen from a queen-cell furnished them. The colonies may then be united again, removing the old queen.

"With a good honey-flow the colony with its reduced brood-nest will need looking after, for the supers will be filled as by magic. The empty super should always be added next to the brood. The sealing of the honey must take place as remote from the brood as is practical. The cleanest honey, none travel-stained, will result in this way. To provide ample ventilation the hives run for comb honey should be placed on four blocks. This will usually prevent the swarming fever from breaking out. If it should come to the worst, a hive-chamber



Quinby's original metal-can honey-extractor. See letter from L. C. Root, p. 260, last issue.



Interior of Quinby's extractor. The gearing was made up from parts of an old fanning-mill.

filled with comb foundation is given, but this only when queen-cells are being built.

"In uniting the colonies at the end of the honey season the queen in the lower brood-nest is usually killed by the bees. In case we did not take time to hunt out the old queens we proceed in this fashion:

"All honey is removed as soon as finished. By the use of the sectional hive we have no dummies under any part of our supers. Over dummies bees never do the work as when all sections are in close touch with the brood-nest."

I believe, in the above, I have covered about all Mr. House told the convention, and I want to say that I have for some six years or more handled a portion of my yards along this line. At times I have used a modification of the plan outlined, following Mr. Taylor, of Colorado, and Mr. Hand, of Ohio; and I can say that I am well pleased with this style of hive and its workings.

As to the wide-frame super, I can only agree with Mr. House, having used this style extensively for more than 35 years, and am perfectly satisfied with it, using now no other. It protects the honey-boxes on all sides, thus giving us the cleanest honey with the minimum of labor.

Naples, N. Y.

BEES AND FRUIT-GROWING

BY S. H. BURTON

That bees are an important factor in fruit production has long been proven; and the time is coming when the orchardist will consider a few colonies of bees in the orchard as much a necessity as a sprayer.

With increased spraying we are destroying the beneficial or pollen-distributing insects as well as the injurious ones; and to offset this loss more bees must be kept.

Observations taken at different times in my own orchards show that weather conditions, governing the flight of bees during the time of blooming, have more to do with the setting of a good crop of fruit than any other one factor in fruit production. Here is some very striking proof:

In a peach orchard of mixed varieties are located several colonies of bees; and during one particular season at blooming time the weather was very cool and cloudy, with a cold east wind. Several cold cloudy days followed with drizzling rain, and the bees did not visit the blossoms except at rare intervals, when the sun would warm things up for a couple of hours. The row of trees directly in front of the hives bore an enormous crop, while the trees on the distant side of the orchard produced scarcely a dozen peaches each.

DOES SPRAYING KILL THE BEES?

Under certain conditions the use of arsenicals is very destructive to the bee, and orchardists who have given the matter careful study will adopt means to prevent the wholesale destruction of these most valuable insects. Spraying while in full bloom is not considered good orchard practice. The poisonous spray falling on the sensitive stigma of the flower injures it by burning, and you not only kill the bees but defeat the very purpose which is sought—that of a good set of fruit. Only a few varieties of apples, notably the Roman Beauty, close the calyx cup as soon as the petals fall, and it is well to begin spraying this apple as soon as possible after blossoming.

Most orchardists begin applying the codling-moth spray when about three-fourths of the bloom has dropped. By this time the flowers have ceased to yield nectar, and are no longer visited by the bees. The stigma in the flower-cup has dried up, and no harm results from the spray falling on the blossom.

The greatest danger of poisoning the bees lies in the fact that most orchardists use some variety of clover, either singly or in mixture, as a cover crop; and about the time for the third summer spray this clover is in full bloom. At this spraying, arsenate of lead is used to control the second brood of codling moth, lesser apple-worm, and other leaf eating and chewing insects. The poisonous spray falls on the cover crop, is blown across the middles between the trees, and every orchardist who has done much spraying will admit that as much spray material falls or is blown to the ground as sticks on the trees, and herein is where the trouble lies.

RED CLOVER UNDER TREES DWARFED.

Not much importance is attached to red or crimson clover as a honey-plant, and bees do not usually visit the blossoms; but the moisture taken up by the trees and the shade tends to dwarf the blossoms, shortening the length of the corolla till the bee is able to sip the poisonous nectar from the flower-cup. To obviate this trouble the orchardist should mow the cover crop just

previous to applying this spray. Several advantages are to be gained in this. He saves the bees, stops the loss of moisture that is being pumped out of the soil by the clover, and provides a mulch over the orchard that is needed at the right time. This mown clover can later be disked into the soil, which is a better method than turning it under green, preventing acidity of the soil.

Washington, Ind.

THE EIGHT AND TEN FRAME HIVES, AND HOW TO USE THEM

BY J. W. SOUTHWOOD

A few years ago it was thought that the eight-frame hive for comb honey and the ten-frame for extracted honey were the proper sizes for best results. But at present the minds of some, at least, are for a larger hive, especially for the production of comb honey. The claim is that a ten-frame hive will give better results than an eight-frame. While this is true with some colonies, and may be true with all colonies in some localities, the fact that many have the eight-frame hive, and, considering the expense of disposing of them and getting the ten-frame, it may deter some from making the change.

To obviate this some have advised placing another hive-body on top, that thereby the colony can build up by the use of the eight-frame hive. It is undeniably true that there are queens which, for best results, require more comb space for egg-laying and brood-production than is contained in the eight-frame hive. It may be the proper thing to do with some colonies, and it may be with all colonies in some localities, to give the added hive-body in the spring, at the proper time when the colony is building up; but in far too many cases this added room of eight frames for the production of comb honey may be too much. It would be quite likely that, before the added hive is filled, the honey-flow is on and the first super of sections is given, and, instead of the honey being all stored in the sections where it is desired, a part of it is deposited in this unfilled hive-body.

As a compromise, last season I prepared some ten-frame hive-bodies, and when a colony built up until it was strong I made an examination; and when I found that the queen was needing more comb space for egg-laying I lifted out the frames and placed them in a ten-frame hive in the same position they held in the hive from which they were taken; and on each side I placed another comb. It so happened that I had two colonies that were queenless and contained laying workers with but few old bees and but little honey, and so I used these combs. When the last two combs were taken out, what few bees were on them were shaken in front of the colony to which I gave the combs. I had intended to use frames with full sheets of comb foundation; but as it so happened that I had the combs, I used them instead.

When the flow came I put the eight-frame supers of sections on these ten-frame hives, placing a strip of lath at each side of the super to cover the space left open by the super being narrower than the hive. When these colonies swarmed they were hived in eight-frame hives on the old stand, and the super, or supers of sections, were taken from these ten-frame hives and placed at once on the new colony with a queen-excluder beneath.

This method gave the queen the necessary room, and thus gave more populous colonies than there would have been if left in the eight-frame hives. It retarded swarming; so when they did swarm, the swarms were larger than they would have been if they had been left in the eight-frame hives. Some colonies that were left in the eight-frame hives gave more section honey, perhaps, than they would have given if they had been moved into ten-frame hives, as the queen had all the space that she needed for brood-rearing, and what honey would have been placed in the two side combs went into the sections. The method gave such satisfactory results that I am intending to try it again the coming season. Whether these two combs should always be placed at the sides, or whether one should be placed at the side where the comb containing more brood and eggs than the other is located, and the other somewhere in between some of the other combs, may be a question. Not only hive conditions but weather conditions should be considered. It might be safer for the beginner to put the combs at the sides.

With this method the eight-frame hives need not be discarded, and yet get the benefit derived by the use of the ten-frame hive. Yes, and even better, as the eight-frame hive in some instances will give better results than the ten-frame, as I have already stated.

Huntington, Ind.

HONEY VS. SUGAR SYRUP

Does Sugar Contain all the Essentials for Rearing Brood?

BY J. E. CRANE

Dr. Miller drops a Straw on page 218 that appears to hold a considerable grain of value, and is well worth our consideration. He has gleaned from back numbers of German bee-journals that there is a belief in Germany that sugar is not as good for building up colonies in spring as honey, as honey contains several substances that are lacking in sugar that are essential in repairing waste in mature bees, and the rearing of brood. He mentions "invert sugar, pollen, ethereal oil, tannin, malate, tartrate, oxalate, and nitrate of potassa, different phosphates, manganese, natron, silica, sulphur, lime, iron," as necessary in the make-up of a bee's body. So it comes to pass that, where sugar is used in spring, bees are slow to build up until they can get honey from natural sources. In this country it is generally thought that sugar is just as good as honey. "Are the Germans right, or are we?" he asks. In common with others of America I have thought it made little difference whether the bees had honey or sugar in the spring, provided they had enough of it; but my experience last season set me to thinking I may be wrong.

This was my experience: Having had two poor seasons in succession I was a little short of a full stock of bees for winter, but had several hundred dry combs. Why not, after the clover went by and all hopes of surplus had past, divide strong colonies, using up my surplus combs, giving young queens and feeding thin sugar syrup to get a good supply of brood, and in October feed sugar syrup for winter? We made some seventy-five new colonies from twice as many old colonies. All seemed to work out about as we expected, except that we failed to get our hives filled with as much new brood in August and September as we had hoped, although they were fed with a thin sugar syrup, week after week with great regularity. There was some brood, but not enough to make strong colonies for winter. Was the cause sugar syrup instead of honey? It certainly looks that way.

On page 228 and 229 Mr. George Shiber tells how he prefers sugar syrup for wintering bees; but for building up in spring he says nothing equals "sealed combs of natural stores." Some years ago it was told somewhere that raw sugar was much better than refined sugar for stimulating bees to rear brood; and we find that such sugar contains some five or more per cent of organic and inorganic compounds, while refined sugar is almost perfectly free of them. We all know that potash, phosphorus, lime, etc., are essential in building up healthy animal bodies, and it is to be presumed that bees are no exception to the rule. I reasoned that, as there was an abundance of pollen to be had during August and September, all that was needed was to feed regularly thin sugar syrup to imitate the nectar of the flowers. I could very cheaply build up a large stock late in the season when bees could do little else. I did not have the advantage of buckwheat or goldenrod, nor even swamps to any extent. Of the seventy-five new colonies, I believe scarcely any of them could be called strong, as they would if a good flow of honey had been coming during the month of August from buckwheat. The experiment was on a sufficiently large scale to be of some value. It seems to me now, as I look the experiment all over, that neither pollen nor syrup from refined sugar contains all that is needed for rearing brood rapidly. The pollen doubtless contains these elements to some extent, but not enough for the best results. I wonder if others have had experience along this line.

Middlebury, Vt.

A MEMORY

A Friend's Reminiscence Retold

BY GRACE ALLEN

The path to Mammy's kitchen winds
  Amid the garden tangle;
And in between the hollyhocks,
Among old-fashioned four-o'clocks
And beds of marigold and phlox,
  Stand hives at every angle.

The barefoot children leap and play
  Like wind-tossed morning glories;
Then "Ouch! I'm stung!" and swift they get
Some grass or leaves or mignonette
And touch the place and so forget!
  Such faith in Mammy's stories!

"Stung, Honey-chile?" black Mammy'd say,
  "Well, don' you fuss an' tend it;
De Debbil's mebbe in de stings,
But God Hisself is in de wings,
An' in de grass an' blossom things—
  A bit o' God'll mend it!"

Heads of Grain from Different Fields

Beeman's Laws

BY IRMA TRUE SOPER

The poets sing of the gentle spring,
The drowsy hum of bees;
"The world's in tune" the poets croon,
"With blossoms on the trees."
But the beeman knows, if his business goes,
He'll take the yoke and work;
He can't sit down nor hang "round town"—
He mustn't be a shirk.

It's the man who drives the nails in hives
And brood-frames all day long
Who doesn't swear nor tear his hair
When an orn'ry nail goes wrong,
But yanks it out for another bout,
Then drives it straight and true,
Till the hives look trim and square to him—
His skies are brightly blue.

An aching back we will not lack
To speed him on his way;
While the sections fill the supers till
They all are stored away.
It's the man who'll smile serene the while
A dozen stings he's found,
When he takes the bug from their cellar snug
And sets them on the ground.

He'll keep his grip till he makes the trip,
Nor pause to pull out strings:
By beedom's laws he must not pause,
Nor mind such little things.
So the poets sing of the gentle spring;
But there's work that must be done;
The beeman knows if his business goes
He'll mix his work with fun.

How Swarm Prevention may be Overdone

I am at home about two days in seven, and depend on my wife and neighbors to hive the bees when they are swarming. I was at home when they swarmed once. They swarmed every week the first first two seasons, and all absconded. By reading books and journals I discovered that, by clipping the queen's wing and destroying queen-cells, I could stop the swarming. This was in 1913, the best season we ever had for honey—so say the writers. I had three very strong colonies which hung out in front of the hive. I raised the hives up on four bricks each; but still they did but very little work. I put a small super on each of the hives. They did not pull all the starters nor cap any of the combs. What can I do to make the bees work when the queen-cells are cut out every seven days, as in the above case? They did not swarm in 1913. My neighbors who let their bees swarm received 152 lbs. of comb honey per stand the same year.

Crestline, O. H. M. BROWN.

[Dr. Miller, to whom the above was directed, replies:]

You operated on the theory that, if you clipped the queen's wing and cut out all queen-cells every seven days, your bees would not swarm. The result was that, while your neighbors got 152 lbs. per colony, you didn't get a finished section. Something wrong somewhere. Let's examine your theory. If the queen's wing is clipped she will not go off with a swarm, because she cannot. To be sure, the swarm will issue just the same as if the queen could fly; but when the swarm finds it is queenless it will return to the hive unless, as sometimes happens, it joins another swarm having a queen with whole wings. But that doesn't often happen, especially in a small apiary. Yet if the colony is left to itself a virgin will issue in about eight days, and with it off goes the swarm. You block that game, however, by cutting out queen-cells each week. In that case no swarm will go off with a virgin. How can it when there is no virgin for it to go off with?

Your theory seems to be all right, *so far as it goes.* It seems to be a case in which "a little learning is a dangerous thing," for your learning brought you out away behind your neighbors who were without that learning. Let's get after the rest of the "learning." First, let us inquire what likely happened with a colony treated as you treated yours. The swarm issued with the clipped queen, and returned. But there's no certainty that she returned. She may have been lost. If she returned, the swarm would keep issuing until she was lost, or until the bees, dissatisfied with her, balled and killed her. In any case, you may count on it that, when a colony with a clipped queen swarms and is left to itself, the clipped queen will disappear within a day or ten days. Even if the queen should be left in the hive as long as ten days, there will be practically no eggs laid in that time. Also, egg-laying had dwindled and practically ceased some time before the swarm issued. So within less than three weeks all recruiting from hatching young bees would cease; and with the bees dying off at the rate of a thousand, two thousand, or more a day, and a colony discouraged because their owner had destroyed all chances of another queen, it is easy to see that the prospect for a big harvest would go glimmering.

Even so, it seems that in so good a year the dwindling force of bees should have done more than they did at gathering surplus. In the first place, let it be considered that, while no eggs were being laid, each day young bees were hatching, leaving empty cells to be filled with honey, and in less than three weeks every cell in the brood-chamber except those filled with pollen would be at the disposal of the bees for storing surplus. The bees prefer the brood-chamber to any spare room above; and so, although a considerable surplus may have been stored, it was all stored in the brood-chamber.

There may, however, have been a change made in the program laid down that would have accounted for a much smaller amount of honey. It is not an easy thing to be sure that you have cut out all queen-cells. I've often seen them so hidden that the most experienced might be excused for missing them. You may have missed one. Then one fine day while you were fondly trusting that no swarm could issue, and so no watch was kept, out came a rousing swarm with a virgin and sailed away in the ethereal blue. And if you had been expecting any thing of the kind you might probably have noticed that all at once the bees ceased to hang out.

Well, you're not likely to be caught that way again; for you have learned that, while clipping queens and destroying queen-cells stops swarming, it also stops some other things, and there is something further for you to do. Understanding the difficulty, you may be trusted to study out what plan will suit you best to proceed; but it may do no harm for me to suggest one way.

If you want increase, you may shake a swarm as soon as you find cells well advanced; for I take it that your business allows you to see the bees almost daily, but not at the time of day for swarming.

If you want no increase, you may let matters proceed until cells are sealed and the queen is gone, or you may kill her. When sure the old queen is out of the way, kill every cell but one, and there you are with a colony having shortly a young queen,

and in the very best humor for the most vigorous storing. If you care to take a little more trouble, a little variation may be better. When the old queen is out of the way, leave the cells undisturbed. In less than a week after the first cell is sealed, the young queen will emerge. About this time go every evening and lay your ear against the side of the hive. As soon as the first virgin has emerged, you will hear her piping. No danger but you'll recognize it the first time you hear it—a shrill note long drawn out, followed by several other notes in rapid succession, each one shorter than its predecessor. You will hear the replies of her young sisters as they quahk in their cells. If still light enough you may act at once. If not, go next morning and kill *all* the cells in the hive. That's all; the bees will do the rest, for you have left the piping queen, which is now in full possession. This is better than destroying all cells but one, for in that case you may leave a cell with a poor queen, or even with a dead larva in it.

Marengo, Ill. C. C. MILLER..

When is a Pear Not a Pear?

Dr. Miller, on page 177, refers to a statement made by some one that the alligator pear is worthless if allowed to ripen on the tree, and says the same rule holds good with nearly all pears. It does not seem to be generally known that the alligator pear, or avocado, is not a pear at all, nor any relation thereto. The pears belong to the apple family, the avocado to the laurel family, which includes sassafras and camphor trees, and several varieties of bay trees. The botanical name is *Persea Persea;* but lately the government botanists at Washington say *Persea americana* is the correct term.

I have never found that it made a particle of difference whether the avocado pears ripened on the trees or not. They should be eaten when mellow, not when the least bit hard, and not when overripe or mushy. They usually drop from the tree a few days before they are just right to eat. Of course, to ship them any distance they would have to be picked greener.

Boca Raton, Fla. F. H. CHESEBRO.

Double Up the Eight-frame Hive

What shall I do with my two-story eight-frame hives of bees in the spring when running for comb honey? Let me explain: In the spring, soon after apple-bloom, I find my best colonies are becoming crowded. I then take brood from them and give to the weaker colonies as fast as I think they can cover and take care of the brood; but even then I had last season about twelve colonies that I apparently could not keep down. So I gave them an extra hive body and set of combs which they filled very quickly.

Now, I don't want to divide, and I have tried placing a super on top, when sometimes I get a small amount of comb built, but nothing like what I get with my strong one-story colonies. If I place a super between the two bodies, the sections that are finished are very dirty.

Has it been found to be of any particular advantage to go to the extra work of placing a small strip of foundation in the bottom of sections when the top strip or piece comes within about ¼ inch of the bottom?

Elkhorn, Wis. W. L. SHERMAN.

[Where the eight-frame hive is used, the plan of making them two stories during the early bloom previous to the main flow is a good one. If a queen-excluder is not used it gives the queen room to lay to her utmost capacity, and will produce tremendous colonies of bees. This is what you want for successful comb-honey production.

Where the clover-flow comes on, remove the upper story and take from the lower hive the outside comb, which, when a two-story hive is used, will seldom be found containing brood, and take from the upper story sufficient combs of brood to fill the lower one clear full. It will now contain nothing but frames full of brood and perhaps a little honey. The queen should also be put into the lower hive. Then put on your supers. If one super will not hold all of the bees, then put on two or three. If the weather is warm, block the hive up from the bottom-board so as to give abundant ventilation below; and if weather conditions are right and the bloom in abundance you will be surprised at the amount of honey that will be stored. The honey from the remaining combs can be extracted and sold, or fed back.

By this system your hive will be crowded with bees and brood, and they will probably swarm; and yet colonies that are in such condition that they will go into the supers with a rush, especially if the honey-flow is heavy, sometimes will not swarm as readily as others that are not quite so strong. In case there is more brood than will go into one hive, about the only thing that you can do with it is to give it to other colonies, if you have such, that will take it, or make increase. It is practically impossible to produce comb honey on top of a two-story hive. This you have found by experience.

Your experience with placing sections between two hive-bodies containing brood is in keeping with that of other beekeepers who have tried that plan. It is a good place to get the foundation drawn out and storing started; but after that they should be removed. The cappings will always be discolored with material taken from the brood-combs.

It is a decided advantage to use a bottom starter. You can always be sure of the combs being securely fastened to the bottom of the section, which is not always the case where only a full sheet is used that comes within a quarter or half an inch of the bottom.—G. H. R.]

Making Division-board Feeders of Metal

My Doolittle feeders require repairing every year. Since the feeders are made of wood, they shrink, which, of course, causes a leak. Feeder testing and repairing has become quite an annual affair. I have been thinking that the feeders should be constructed of stout galvanized iron, then painted, and, while the paint is wet, apply very fine sawdust. The sawdust would take away the cold touch of the iron, for which it is known the bees have a strong dislike; and, from the standpoint of the bees, would be the same as a wooden feeder, the coarse sawdust also giving the bees a good footing when taking the syrup.

From the standpoint of the beekeepers there would not be any loss of time in testing and repairing, and, above all, there would not be the annoyance that is caused by a leaky feeder.

St. Albans, New Zealand. W. A. SILLIFANT.

But is Paralysis Caused by Pollen Constipation?

M. Y. Calcutt says, page 26, Jan. 1, that bee paralysis is caused by the bees becoming pollen-clogged. That being the case I can see where the cascaret would relieve them. But what I can't get through my head is this: If the bees are pollen-clogged, as he says they are, and giving them a cascaret will effect a cure, then how can it effect a cure to discontinue brood-rearing when they are storing honey in the supers?

Why would they not be pollen-clogged just the same after brood-rearing has been discontinued, and they are storing honey in the supers as before?

Council Grove, Kan. ROBT. N. ROWLAND.

A. I. Root .OUR HOMES Editor

That we also may be like all the nations.—I. SAMUEL 8:20.
Thou shalt not follow a multitude to do evil.—EX. 23:2.
Thou shalt not covet.—EX. 20:17.
Thou shalt love . . . . . thy neighbor as thyself.—LUKE 10:27.

In our recent Sunday-school lessons we have been considering the people who wanted a king, and they petitioned the prophet Samuel until he, by Jehovah's direction, consented to give them a king, but at the same time made vigorous protest by telling them how it would turn out. A startling truth confronts us here. God, at least sometimes, grants importunate prayers by letting us have things not best for us. We should always preface such prayers by something like this: "O Lord, grant this petition, only if thou seest it will be best for us and humanity at large."

Again, the reason the people gave Samuel for wanting a king was because it was "the fashion." Because other nations, perhaps heathen nations, had kings, *they* wanted a king. They wanted to be like "other folks." This is all very well if the "other folks" are in the "straight and narrow path." Even at this present day it is sometimes a very *easy* thing to "follow a multitude to do evil."

Before taking up our two other texts I want to tell you a little story of my early boyhood. It happened so long ago I shall have to "fill in" a little; but it was substantially as follows:

Between 60 and 65 years ago *marbles,* instead of baseball, was the fashionable game. As soon as it was warm enough in the spring, all the boys (and some of the girls too) were playing marbles. I soon became tolerably expert, when some boy came among us and taught us how to make the game *more* interesting by playing for "keeps." To my great dismay, however, my good mother forbade my having any thing to do with that kind of game. It soon got such a run that the boys could hardly be kept in school, and all home duties and "chores" were neglected. It soon got out that *my* mother forbade *me* to do more than look on. Have you ever been there, dear reader? Can you still remember the looks of the "bully" of the crowd as he stands before you and says:

"Sonny, is it true that your 'ma' won't *let* you play? Better run right home; you might get hurt, or get in with 'bad boys.'"

And can you remember how the crowd hooted and "hollered"?

I said to mother, "Why, mother, every single boy in school plays for keeps, and their mothers don't say a thing about it. *Why* can't I play, and be like the rest?"

After much like importuning she finally said:

"All right, Amos, you go and play, and see if you will be any happier; but please come and tell mother how it turns out."

I soon found two boys who were willing to play, and one of them was my best and most intimate friend. I very soon had all the marbles from both boys, and went home to show mother how much I had "gained" so quickly. Her next question was:

"What did Ariel say, when you won all his marbles?"

I hung my head; but when pressed I replied:

"Why, he got mad first, and said I cheated; and when I got his last marble he cried."

She put her loving arm around me and said, in a very low but kindly voice:

"My boy, don't you think you will be far happier if you run right over now and give the boys their marbles back again? You didn't *buy* them; you didn't give them *any* equivalent. You have all this bagful that you don't need and don't want, and they have no marbles at all."

I think I must have been barefooted and bareheaded as I scampered to both boys' homes and saw them both look, not only happy but friendly, and I made just restitution. May God be praised for that wise mother, and for the fact that that early lesson has lasted me sixty years or more. I do not think I have ever since taken any thing in any game of chance, and I believe I can say almost as much for our five children and ten grandchildren. Mother cured *me* as God tried to cure the uneasy and rebellious people who wanted a king because "other people" had kings.

While the incident above cured me from *gambling* it didn't seem to cure me or keep me from the craze for "gift enterprises." When I was about 25, and kept a jewelry store, a firm in Buffalo, N. Y., with whom I had dealt, sent me a box containing 100 packages to be sold at 25 cts. each. Each little box contained four papers of needles and a prize or gift. These gifts were valued at from 10 cts. to a $10 watch. Very soon the store was crowded. It was like a lot of bees around a piece of honeycomb. The excitement was soon such that poor people bought needles enough to last them

forty years or more. The first box went so quickly I wired for a second. I don't recall where my good mother (or wife?) was just then; but here is lesson *No. 2* that God sent me:

A washwoman whom I knew came into the crowd with about a dozen broken packages and a lot of jewelry. I distinctly remember among the lot a gold(?) locket and neck-chain said to be worth *ten dollars*. She broke right in through the crowd and said something like this:

"Mr. Root, you probably know that my husband and I have hard work to get along and care for ourselves. Well, we had just scraped up money enough to get a sack of flour, and I trusted the poor old man to go up town and get it. This crowd you see here persuaded him, if he bought your needles, he *might* get a gold watch that he could swap for several sacks of flour. Now, here is what he brought home instead of the flour. What does the like of us want with these trinkets? If they are of any value to anybody, you know how much and what to do with them. Will you kindly excuse my poor old man and take these and give me the money to get the flour?"

I was not a professing Christian then; but I shut up the box and told the firm that sent it they could allow me what they chose or nothing, and from that time to this I have tried to steer clear of "prizes."

Just about a year ago a young beekeeper paid us a visit. Between here and town some lots were sold at an auction. A little girl gave out cards. Our young friend took one of the cards from the child, and it happened to be worth $20 on the purchase of a lot. He didn't want any lot; but a man who expected to buy one gave him, I think, $15.00 for it. So he made a visit to A. I. Root and gathered in quite a few "shekels" on the way.

If I am rightly informed, something similar is going on most of the time down here in Florida, and perhaps in many other places where there is excitement about real estate. I feel sad when I see it or hear of it, and sadder still when I meet so many who seem to think no harm may come from that way of doing business. If nobody wanted (or coveted) anything without rendering a fair equivalent, what a happy world this would be! and if everybody really loved his neighbor as himself, God's kingdom *would* come, and his will *would* be done on earth as it is in heaven.

HIGH-PRESSURE GARDENING

HOW TO MAKE "THINGS" GROW.

I have been expecting some of you would complain because I, as I grow older, get to telling the same thing "over and over." I have heard no such complaint as yet; and when it comes I am going to "come back at you" with the declaration that there are things that *should* be told "over and over," and what I am going to talk about is *one* of the things.

Perhaps thirty years ago it was, when one of my hobbies was the growing of vegetable-plants for the local trade around Medina. The plants were grown in shallow boxes about a yard long and 16 inches wide, and about 3 inches deep. We first put in a layer of old well-rotted stable manure, and on this some rich sifted garden soil; and when we were short of plants, and it was desirable to rush them along, we sifted in a little guano. Well, when the weather became real warm, say in May, we found the flea-beetle was getting bad on our young cabbage-plants; and reading in a paper that slaked lime, or lime water, would head them off, I told the boys to sift some lime into the soil before they sowed the seeds, and then forgot all about it. In a day or two my attention was called to a box of plants of such luxuriance and dark rich color that I uttered an exclamation of surprise. The first seed-leaves of the cabbage were larger than any thing I had ever seen; and when I began making inquiry I was told it was the effect of both lime and guano. Then I began to explain to the interested crowd that the lime had probably liberated the ammonia in the guano at just the time the sprouting seeds needed it, when one of them exclaimed:

"Ammonia? I should say so! When I sprinkled the box with warm water, as you told us to do, after sowing the seeds, it smelled like a bottle of hartshorn or smelling-salts."

After we had tested the matter so we were satisfied we could get the same result *every time,* I said to the boys something like this:

"Boys, if some one had come along here and showed me a box of plants like these, and had offered to sell me the secret for a *hundred dollars*, I think I should have paid it at once."

Well, we grew plants in that way for several years; and if I remember we gave

it up only when guano seemed to be out of the market. Yes, good poultry manure will give a similar result, but not so marked. You may recall that when Prof. Thorne, of our Ohio Experiment Station, said so much about lime for sweet clover and other legumes I recalled this incident.

Well, since our supply of potash has been recently cut off (here in Florida, especially), attention has been called to guano; and remembering my experience of years ago I sent to Crenshaw Bros. Seed Co., of Tampa, for a 100-lb. sack of guano, and commenced experimenting. It cost $3.85 for the 100 lbs. I first tried it on a bed of radishes. By the way, when you set a hen always sow some radishes at the same time. They will be then just right for the chicks when they are three or four days old, and they will soon clamor for them more than for almost any thing else. With a sharp knife shave off the tops from a bunch held in the left hand. The mother hen will instruct them.

The radish-bed was manured and fertilized, and then covered with sifted slaked lime until the surface looked white and then raked in. Just before the seeds came up a little guano was sifted on one spot across the rows; and the dark rich color and larger plants in a streak across the bed show the effect. Part of a row of onions shows the same thing; but the finest "object lesson" is a row of peas 30 feet long. I put about a teacupful on five feet at one end, and hoed it in carefully. After the first rain they took on a decidedly different color; and now when the 25-foot untreated part of the row is turning yellow, the remainder is a dark thrifty green, and Mrs. Root says she has picked more peas from that *five feet* than from the whole 25 feet that had no guano. *One cent's worth* of guano must have given five or ten cents' worth of peas to make a rough estimate. I tried it all over the garden in a similar way; and while the results are not all so pronounced, I feel sure that, used judiciously here in Florida, it is going to be of great benefit. On a few things, where the weather was too cold and wet, and possibly because I used too much, or got it too close to the plants or seeds, I killed the plants. Like many other new things you will need to experiment until you get acquainted with it.

As many of you will doubtless be inquiring where you can get it, especially a small sample, I am going to do some "free advertising" by clipping from an advertisement I find in the *Florida Grower:*

Write for free sample (enough for 40 square feet) genuine Peruvian Guano, Nature's most wonderful fertilizer, the greatest crop-producer known. Nitrate of soda. NITRATE AGENCIES CO., Savannah Bank Building, Savannah, Ga.

Perhaps I should add that all soils are not alike; and while guano gives great results on mine it may not on yours. Make careful tests on your own ground before you invest in fertilizers of *any* kind. And permit me also to add that our best authorities declare "soil analyses" amount to little or nothing. You must find out by careful tests on your own garden what *your* land needs.

At this date, March 2, we are digging the nicest Bliss Triumph potatoes we ever grew. While old potatoes are advertised at 20 cts. a peck we are getting *50 cts.* Besides our poultry manure, we have used on our half-acre garden about 500 lbs. of Mapes' special potato manure at a cost of about half as much as guano, but at present we think guano is cheaper.

A NEW "DAILY BREAD."

Last October, our good friend Henry Borchers, of Laredo, Texas, sent a clipping from the (Sunday) *San Antonio Express,* with a heading "Discovered—a New Bread that will save Southwest Texas Millions." I read the article, but as I have had reason to take "discoveries" exploited in Sunday papers with a little caution, I paid but little attention to it. When I saw later that "feterita," the new bread-producing plant, was cataloged as cheap feed for chickens, I began to "take notice;" and when I saw the following in such a reliable journal as the *Farm and Fireside,* I took more notice.

Kansas had 135,800 acres of feterita in 1914, and yet it sprang into prominence in Kansas only last year. Besides its dry-weather-resisting qualities and early maturity, the feeding value of its grain is pronounced as practically the same, pound for pound, as that of kafir and milo. Kansas certainly snaps up the good new things.—*Farm and Fireside.*

Will some of our Kansas readers tell us if the above is really a *fact,* or is there a mistake in the figures?

Well, feterita is now growing in our garden; but it has been so *cold and wet* during the whole past winter (over *three times* the normal rainfall), it hasn't looked happy, nor grown very much; but whenever the sun comes out warm it brightens up vividly.

At my solicitation friend Borchers sent us some feterita flour and (as he is a baker) also some feterita bread and cakes. Breakfast food made of the flour, with some nice honey, suits me to a dot, and the *cakes* are also fine; but so far the bread does not strike me as an improvement on

the graham bread Mrs. Root makes of home-grown and home-ground wheat.* I applied to the Department of Agriculture, and received an eight-page bulletin, put out in 1914. From the last page I clip as follows:

SUMMARY.

Feterita is a sorghum from the British Egyptian Sudan, in Africa. It is a durra, related to white durra and to milo, with slender stems 4 to 7 feet high under varying conditions, erect heads, and large, rather soft, white grains.

Extravagant claims have been made for feterita by uninformed or interested persons. Experiments show it to be a good grain and forage crop, but not in any way meriting extraordinary praise. It has proved about equal to milo in yield.

All cultural operations are much the same as for milo and kafir, though certain differences are pointed out.

Feterita is newly introduced, and quite variable; therefore seed selection and improvement should be practiced in each district where it is grown in order to obtain adapted strains.

NOTE.—Since the first edition of this circular there has been considerable advertisement in Oklahoma, Kansas, and Texas of a sorghum under the name of "Schribar Corn." An examination of samples submitted to the Department of Agriculture has shown this to be nothing but feterita.

This bulletin makes no mention of it as a *bread-making grain.* Sixty years ago, when mother and I were making garden, I got from the Department of Agriculture a few seeds of "sorghum," the new Chinese sugar-cane that would grow in the North. In due time, with a home-made mill, we had "sorghum syrup." Just as usual (even at that early age), I was delighted with the new sweet, and am yet, when I can find some well made. Well, I have a dim recollection that I ground some of the mature and dried seed in the coffee-mill, and had "cakes and syrup" made of the wonderful new plant. The rest of the family, however, didn't seem to "enthuse" very much over *my* "great discovery."

* Since the above was in type we have been making sour-milk pancakes one-half feterita flour, and I think them fully equal to buckwheat.

In summing up, if feterita should enable us to grow chicken feed here in Florida, to take the place of wheat, it *will be* a great thing for us. We are already using kafir corn with good results, especially for little chickens.

Feterita can be grown successfully in Ohio, for The Livingston Seed Co., of Columbus, have grown it, and think so well of it they give a fine picture of a head of grain on the cover of their 1915 catalog. All reports seem to agree that it stands severe and long-continued drouth better than any other grain, and perhaps better than any other plant. It yields from 25 to 75 bushels per acre.

DASHEEN; KIND OF SOIL NEEDED, ETC.

Mr. Root:—Last year I took home (to Glen Falls, N. Y.) a quantity of dasheens, but was not satisfied with results. While they grew fairly well, by the time the fourth leaf was growing the first one would fail, and their color was never right. Can you tell me what particular kind of soil and fertilizer they need? I cannot learn from any one here. They seem to think they will grow "any old way," so, like a multitude of others, I am troubling you.

Orlando, Fla., March 22. MAY G. DEVINE.

My good friend, I regret that I cannot tell you why your dasheens should act in that way. We have no trouble here in Florida, nor in our heavy clay soil in Medina, Ohio. I think a rather damp sandy loam is best, and there should be plenty of humus in the soil—say plenty of old well-rotted stable manure, and plenty of water, at the same time providing good drainage.

THE DASHEEN IN YORK STATE.

The dasheens are received, also Rainbow corn. One of the dasheens grew last year, and was fine. I "harvested" it Oct. 26 and ate it *all*, and found it very good. MANLEY E. BRUSH.

Hammondsport, N. Y., March 17.

My good friend, you say "*it.*" Was your harvest only one tuber? You should have had a dozen, big and little.

HEALTH NOTES

OXYPATHOR DENIED THE USE OF THE MAILS.

We clip the following from the *Rural New-Yorker* of March 27:

I am tormented by an agent for "Oxypathor," which I have known to be a fraud for over 25 years.

New Jersey. DR. C.

The doctor will not be tormented any longer. A fraud order has been issued by the Postmaster General denying the use of the mails to the "Oxypathor Company" of Buffalo and allied companies with offices at Columbus, Ohio, and Wilmington, Del., on the ground that these concerns have been defrauding the public on an enormous scale for the last six years. An appliance was offered by the company which it was claimed transmitted oxygen into the human body and was advertised to be a cure for practically all forms of disease. The promoters were held to be "conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses." Postoffice inspectors find that in six years, from 1909 to 1914, inclusive, 45,451 such machines were sold at $35 each, aggregating $1,590,785. We have frequently advised against the use of this and similar appliances. Some three years ago the Oxypathor Company gave us the privilege of accepting oxypathy, "if you like, otherwise it will wipe its feet on you." It seems the Postoffice Department has made better use of it, and the Oxypathor has become the door-mat. J. J. D.

Our older readers will recall that GLEANINGS has been fighting this thing (almost single-handed until the *Rural New-Yorker* stepped in), for more than 20 years, and we have been repeatedly threatened with "suits at law" by the different promoters of the "senseless toy." Not only that, but I have, every time I have shown it up, made some man or woman an "enemy for life," it would almost seem, because I continued to declare there was "neither sense nor science" in running "oxygen" through a wire. Just think of it—over a *million dollars* has been paid for it by sick and ailing people! It just started at $25.00 for a senseless rig that could be sold at a profit at *25 cts.;* and as if *this* were not a big enough profit, the price has recently been raised to *$35.00*. The miserable thing has also been *copied,* again and again, by some vender.

Some one who had no scruples about "robbing sick people," seeing the money the "promoters" were getting, copied the thing, hence the various names for it. Some years ago I appealed to the authorities at Washington, D. C., and they sent a man to investigate; but as they didn't claim it to be a medicine he said there seemed to be no law to stop such cases. Yes, they did have a sort of *patent* granted for it, as a device that cured people by working on their *imagination,* etc.

Now, friends, there is a big moral right here that we all ought to recognize. Dear kind old Dame Nature is all the time working cures, did we but stop and recognize it. When we are feeling badly, if we go to a doctor or get something in a bottle at the drugstore, and suddenly recover, we of course give the doctor or the medicine the credit. Just 24 hours ago I took a sudden cold—almost the first severe cold since I omitted a regular supper four or five years ago, took a daily bath, etc. I had sore throat, earache, with droppings from my nostrils almost continuously, etc. Next day I had a good nap before dinner, but still felt so badly I thought *after* dinner I would really have to go to bed and stay there, and perhaps would have done so had it not seemed quite necessary I should take a trip out into the country. Well, while writing this (just before bedtime) my cold is all gone, my nostrils are clean and free from congestion, fever, etc. What did it? I don't know unless it was the ride, well bundled up, out in the Florida sunshine. Suppose, now, I had had an electropoise, and had gone through with their senseless rigmarole. What a *testimonial* I could have *honestly* given! Shall we not investigate, and try things? Sure! But take a lesson from our various *experiment stations.* Go and visit them if you have never done so, and learn how *they* make test experiments over and over again before they accept conclusions and give the results to the world. The station folks are honest, and have no ax to grind—no object in life, except to benefit humanity.

"OLD AGE DEFERRED." FROM A GOOD FRIEND WHO WAS AN "INVALID" 30 OR 40 YEARS AGO.

Dear Bro. Root:—I have been thinking of writing to tell you that, although I am getting near my 83d birthday, I did lots of work last summer and fall—more than usual, as I have had some of our houses to repair, and the outdoor work has improved my general health very much.

As I tell it, I have spent $200 or $300 on the houses, and have received *one hundred dollars* in health. I am very much interested in the Home department, especially poultry and health. Mrs. Axtell's article pleased me very much. I have been for some years rubbing myself (or massaging) all over when I wake up in the night, and sleep always comes, though sometimes I massage for half an hour or more before sleep comes. I also practice deep breathing with very much benefit. I do it nearly every night.

I was interested in what you said about your daughter's Plymouth Rocks. I have one little pullet, said to be a cross between a Rhode Island Red rooster and a Black Minorca hen, which laid 28 eggs from Nov. 22 to Dec. 22. She has laid ten eggs more up to to-day, Jan. 5. I think she is something like your Buttercup, as she comes out to me, following me around and talking, and I talk back to her. I feed her extra on wheat at $2.00 a hundred, and she eats out of my hand. We get 50 cts. a dozen here now for fresh-laid eggs.

Billy Sunday did a great work here, and I doubt if the state would have gone for prohibition but for him. He seems to have done a greater work in Des Moines, Iowa. Bible classes were started all over the city, and are still kept up. Fifty doctors organized a prayer-meeting among themselves.

Denver, Colo. J. L. PEABODY.

"BOTH BOUND FOR THE HEAVENLY SHORE," ETC.

I recently dreamed twice in one night that I met you traveling through the country, and felt very fortunate to have a few minutes' talk.

I trust the time is coming when it shall not be limited to "a few minutes."

We are both bound for the heavenly shore, and no doubt soon will meet.

I sometimes wonder if you have trials and difficulties like myself, and if you always know just what to do. I am a class leader, steward, Bible-class teacher, and sometimes organist. I have almost three miles to go up hill to church, and have to walk all winter over terrible roads, and often through rain. I am 54 years old, and am bothered a good bit with rheumatism, and it is not the easiest task for me to get up there. However, I don't mind all the hardships. I am doing it for Christ's sake, and don't want publicity or pity. But what does hurt me is that people so seldom respond. I can't see that I am accomplishing much. I have, however, one satisfaction—my own dear children are trying to serve God.

Laurel, Oregon, Feb. 24. S. PARR.

My good friend, "Be not *weary* in well doing, for in due time we shall reap if we faint not," and also remember who it was that said, "Inasmuch as ye have done it unto the least of one of these my brethren, ye have done it unto me." Yes, my good and patient friend, I do have trials, and I often wonder if others have as many; but had these trials not come I should not have *found* my little short prayer, "Lord, help."

TEMPERANCE

SEE FINISH FIGHT ON LIQUOR ISSUE IN 1916 CAMPAIGN.

I copy the following from the Cleveland *Plain Dealer:*

The results of the prohibition movement since December 22 are:

ALABAMA.—Legislature passed a prohibition law to go into effect July 1, 1915. Bill repassed over the governor's veto. It limits to one quart a month the amount of liquor that may be received by one consignee, and prohibits liquor advertising in newspapers, on billboards, and otherwise.

ARKANSAS.—Legislature enacted prohibition to be effective Jan. 1, 1916.

IDAHO.—Legislature has submitted the question to voters for election of 1916. Governor since has signed prohibition measure to become effective Jan. 1, 1916.

IOWA.—Legislature repealed the mulct law, leaving prohibition effective after Jan. 1, 1916. It is certain Iowa will vote on constitutional prohibition next year.

MONTANA.—Legislature submitted question to be voted on next year. Legislature desires the bill submitted should make prohibition effective Dec. 31, 1918, but the prohibitionists have refused to accept it, contending the date be Dec. 31, 1917.

NORTH CAROLINA.—Legislature passed law prohibiting delivery of intoxicants in state even for personal consumption.

SOUTH CAROLINA.—Legislature submitted question to voters for decision in 1915.

UTAH.—Both branches of legislature have voted to submit prohibition to voters.

COLORADO.—Legislature has enacted laws to enforce prohibition after Jan. 1, 1916.

MINNESOTA.—Legislature has put local option into effect.

PENNSYLVANIA.—Legislature is considering local-option bill.

NEW JERSEY.—Legislature is considering local-option bill.

The states in which prohibition is in effect or where statewide prohibition measures have passed, but are not yet in operation are:

Alabama, Arizona, Arkansas, Colorado, Georgia, Iowa, Idaho, Kansas, Maine, Mississippi, North Carolina, North Dakota, Oklahoma, Oregon, Tennessee, Virginia, Washington, and West Virginia. Total —18.

The action of the North Carolina legislature, following close on the West Virginia court decision which places an embargo on alcoholic liquors, is regarded here as a startling development. A bill has been offered by the speaker in the Kansas house of representatives to shut liquor out of the state.

GOD'S KINGDOM COMING.

Our good friend J. E. Miller, of Homedale, Idaho, sends the clipping below, and adds, "Praise the Lord." Can we not all join with him in his brief "Methodist shout"?

The statewide prohibition bill which makes Idaho absolutely dry after January 1, 1916, was signed by Governor Alexander at 3 o'clock last Monday afternoon. The office of the chief executive was crowded with temperance workers from all parts of the state who desired to witness the official ceremony that came as a culmination and a victory from their efforts of several years.

Two pens were used by the governor in affixing his signature to the bill. One pen was presented as a souvenir to Mrs. W. S. Chipp, of Boise, the president of the Women's Christian Temperance Union of Idaho, and the other was handed to W. J. Herwig, state superintendent of the Anti-saloon League.

Praise the Lord!

SIGNIFICANT FIGURES.

From the last United States census we learn that the wet state of Nevada had, in 1910, 353 prisoners for every 100,000 of her population, while her dry neighbor, North Dakota, had 63. Nevada had 194 paupers for every 100,000 population; North Dakota, 14. Nevada had 282 insane people for every 100,000; North Dakota, 108.—*Home and State.*

SOME EXTRAVAGANTLY KIND WORDS FROM A BROTHER IN FLORIDA.

Dear Friend:—I am trying in my poor way to keep up with your papers called Our Homes, as they are of much importance to me. I find myself without words in stock to express to you how I appreciate the feasts it brings to my soul. They are just sweet, for I am sure that they have been given to you from a higher power than mere education. "Lord, help!" means much. I realize this as being a more than true fact, if, possibly, "Lord, help!" has been heard by the loving Savior many times. I can say of a truth that Jesus does answer prayer.

Now let me suggest to you that Jesus is a polite clerk for God's great storehouse of goods, and is just ready and waiting for a customer to rap, or ring the phone bell, and then "right then the goods are delivered"—no climbing up and down the shelves to look for the number the customer calls for. Jesus is fully up to this wonderful house of plenty, and, best of all, he does not *cheat* customers who deal with *him.* When once a man gets *acquainted* with this wonderful Jesus (the principal clerk), he never becomes displeased, for he knows just what size of garment and style will fit, and he can see you, even away down the dark road, coming to purchase a wedding-garment. Just call over the phone, and your order will be filled that same day. In fact, I believe I can say Jesus (without fear or doubt), will even fit it on you before you can hang up the receiver.

I trust you will not think me boasting when I tell you I ordered a robe of righteousness, pure and white, washed in the blood of the Lamb; and, praise his holy name, it just suits me; and, best of all, I feel sure that I can wear it six days in the week, and then it is also ready for Sunday service. Thank God for his promptness in filling the order. He has been a friend to me. I am sure if either of those skeptics you referred to will call for a Christlike "tailor-made" suit, so to speak, and call in *dead earnest and faith,* Jesus can please them, and they will be *ashamed* of the one they now wearing. Can't I hear you say, "*Amen, amen*"? May God help you in this contest with such characters as you are now having to contend with. Dear brother, you have got *my vote in the contest.*

I want you to pray for me, and faint not. Ask God, in his all-seeing and all-knowing power, to deliver me. This is a wonderful knowledge, if it is his will, for me to know and understand his biddings and the scriptures. "For in them ye think ye have eternal life, and they are they that testify of me." Pray for me. I need the prayers of all God's dear children. I thank God, time after time, for just such men as A. I. Root.

Sanborn, Fla. Oct. 12. CHARLEY C. LANGSTON.

Vol. XLIII MAY 1, 1915 No. 9

Gleanings in Bee Culture



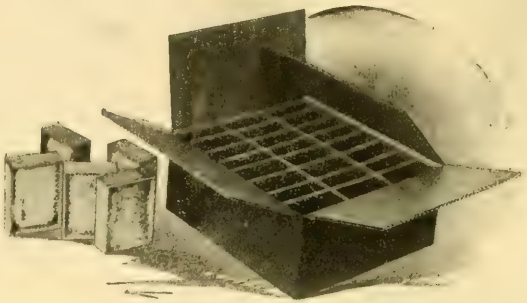
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Photographed by Edward F. Bigelow

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Gleanings in Bee Culture

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VOL. XLIII. MAY 1, 1915 NO. 9

EDITORIALS

Clover Prospects for this Season

Reports are somewhat conflicting. Some say that clover looks well, while others say the weather has been too dry. In this locality we have not had quite enough rain to insure a good crop of clover honey. The spring has been favorable for building up colonies.

Late California Rains

Just as we go to press the following report has been received:

The California situation has improved with a rain ranging from one-quarter of an inch to one inch and some places more than that in the higher mountains. This will put an altogether different complexion on the prospects of some localities, which had begun to dry out with hot winds. The weather for the last ten days has been rather cool for the production of orange honey, though several people report that they are taking out honey in liberal quantities.

Idaho Not Without Foul-brood Legislation after all

Joseph J. Anderson, of Salem, Idaho, in one of his recent letters, in referring to the fact of the governor having vetoed their foul-brood bill, says the beekeepers of the state are not without protection after all, but they needed something better. Fortunately they have an appropriation of $3000 to put the *old* law they have into effect.

Big Quadruple Winter Cases vs. Individual Double-walled Packed Hives

The past winter's experience does not clearly show that these big winter cases are ahead of the double-walled so-called chaff hives. In one yard the big ones showed a marked superiority over the individual double hives. In another yard there is no appreciable difference. The fact that we had so much aster honey last fall has complicated the results, and it is therefore a little difficult to make any definite assertion. Where there are good stores and a fair colony, big winter cases are ahead in that they have much more brood than the individual double-walled hives.

How the Bees over the Country have Wintered

Reports thus far received from over the country show remarkably good wintering. There are a few reports, where bees had aster stores, showing that there was from 25 to 50 per cent loss, and hives badly spotted with dysentery. The losses seem to be largely in the aster districts of northern Ohio than anywhere else. Our own loss will run about 35 per cent among colonies supplied with aster stores. There was no appreciable loss among bees having good stores.

We shall be glad to get reports from our subscribers as to how bees have wintered in their respective localities; and if there was any considerable loss, whether the spring has been favorable enough to compensate in part for this loss. This information will be very interesting and valuable, as it will have a bearing on the price of honey this coming season.

The Folly of Spreading Brood at this Time of the Year

Very often when a premature warm spell of weather comes on, lasting for a couple of weeks, the temptation is very strong to hasten brood-rearing, either by unwise feeding when the bees have plenty of stores or by spreading brood. The novice is very apt to conclude that the bees will increase faster if he puts a frame of empty comb down in the center of the brood-nest; and if the warm weather continues, with no cool nights, the practice may do no harm, and it may do some good. But as a general thing old Dame Nature has a fashion of bringing on one extreme after another. A

warm or hot spell out of season is quite likely to be followed by a chilly or a cold spell of weather. It is then that the practice of spreading brood results in almost irreparable damage to the colony. While the bees may recover, the split brood-nest causes a large amount of brood to chill and die; and the result is very much worse than if the bees had been left to their own sweet will.

Luther Burbank and his Recognition of the Honeybee as a Pollinating Agent

Quite incidentally we have learned, as we approached the home of Luther Burbank, the plant wizard of the world, that in the making of some of his new creations he is in the habit of getting up at 4 o'clock every morning, or before the bees get out to modify the results. He has often spoken of the bees as a pollinating agent; and did he not recognize their power to modify plant life, he would not get up so early in the morning to mingle the pollen in an artificial way in order that he may secure some creations that nature, if left undisturbed, would not produce. Indeed, we are told he keeps bees for the very express purpose of helping him to bring out some of his wonderful works in the plant world.

How do Bees Smell?

Just as the study of human traits and faculties is based upon accurate researches in the senses, the study of the psychology of the honeybee should begin with investigations of the sense organs of bees. Unless their anatomy and functions have been carefully determined, we can never reach a clear understanding of bee behavior. The habits may be observed, but the reason back of them can never be grasped by one unfamiliar with the way they receive their impressions of the outside world.

If any of the three senses of sight, sound, and touch can be picked out as more fundamental in man than another, it is sight. With the bee the sense of smell is probably the most important within the darkness of the hive but outside it is of secondary importance. The seat of this sense, scientists hitherto have been placing in the antennæ, one writer even claiming to have located the segments in which the power of detecting enemies arises.

According to N. E. McIndoo, Ph.D., of the U. S. Department of Entomology, the seat of the olfactory sense is not in the antennæ but in certain olfactory pores, at the base of the wing and the joint of the leg. In a noteworthy contribution to the psychology of hymenoptera entitled "The Olfactory Sense of the Honeybee," he details an extensive series of experiments carried on with normal and mutilated bees to discover wherein lies their appreciation of odors. Bees deprived of antennæ were abnormal in every way. There was nothing in his experiment to indicate that the antennæ play the slightest part in smell. On the other hand closing certain of these pores with varnish increased twelve times the length of time the bee ordinarily took to react to strong odors. From these results he summarizes that the antennæ can no longer be regarded as the seat of the sense of smell in insects.

In a criticism in the *American Bee Journal*, Dr. Bruennich believes that these organs which Mr. McIndoo featured are merely protective against injurious gases, and that the antennæ are the seat of the senses detecting the presence of honey and of enemies.

Difference in Honey Production between Two Apiaries Two or Three Miles Apart, and Why

It is a well-known fact that there may be a great difference in the yield of honey between different outyards. One yard, for example, may yield 100 lbs. of surplus clover, and another, not two miles away, will furnish almost nothing. Sometimes the difference is attributed to the soil; but when the two yards have yielded about the same amount in previous years, we must account for it on a different basis.

Just a few days ago two farmers near us complained of weather conditions on the same day. One had had so much rain that the ground was so thoroughly soaked he could not cultivate, and the other, not more than a mile and a half away, said his ground was so dry that he feared that his crops would be short. Suppose, for example, both men had been growing alsike and white clover. It is easy to see why in the one case bees on one farm would get a crop of honey while those on the other farm would get nothing. These local showers have a way of thoroughly wetting down one farm and leaving the other farm high and dry. Then, the failure of one beeyard and a plentiful yield of honey in another can often be explained by the amount of moisture in the soil.

There is another cause: There will be winter killing of clover on one farm where

the land is low and wet, where on another farm a mile or two away on high ground that is comparatively dry, there will be no winter killing. On the latter farm bees may do well; on the former there might be almost a failure of honey.

The A B C of Composition

THE editors of GLEANINGS have printed a small folder for free distribution entitled "Suggestions to Contributors," designed to furnish contributors and would-be contributors a few hints on the composition and general get-up of their articles. So much ignorance seems to exist regarding the manner in which a manuscript should be prepared for the printer that these instructions should be welcomed by the writers for GLEANINGS. While the thought is the main thing, it is true, nevertheless, that a well-written article commands a higher price than one that is carelessly prepared.

The college professor who reads in this circular that all sentences should begin with a capital letter should not allow his feelings to be hurt. The little instruction is given in elementaries because elementary reminders are just what a great many writers need.

If the contributors follow these instructions the editors will be happy, typesetters will bless them, and they themselves in the end will be gratified at the improvement.

The Massachusetts State Board of Agriculture and its Advice to the Fruit-growers on Spraying

THE Massachusetts State Board of Agriculture is sending out a large colored poster in bold display type, containing a set of instructions to the fruit-growers of Massachusetts. At the very beginning is a bold headline, "Are you spraying at the right time, or are you spraying at all?" Another line says, "Are you killing the bees that are setting the fruit for you?" Down below this there are plain and specific instructions on when and what to spray with. It mikes very emphatic the fact that the trees should not be sprayed while in bloom, and then adds, "If the nectar and pollen they (the bees) are after are poisoned at the wrong time (during blossoming) they are liable to be poisoned, and less fruit will be set." Then in black letters appears the following: "Never allow your trees to be sprayed while the large pink or white blossoms are still on them, for the job will not be as well done. Less fruit will be set, and many bees may be killed." This is not from a beekeeper, but from the State Nursery Inspector, H. T. Fernald.

This poster is one of the best things we have seen. It is brief and to the point, and cannot help being of great benefit to fruit-growers and beekeepers alike. Other states would do well to send for a copy and get out one similar to it.

A New Department for Southern Beekeepers



GRACE ALLEN

There have been many requests for a department in GLEANINGS representing the southeastern part of the country. The beekeepers have felt so "left out" that they finally brought their requests to a focus—with the result that "The Dixie Bee" starts with this number, and will appear in the first number each month.

Our readers who have been enjoying the delightful poems by Grace Allen will be glad to know that she has consented to edit this new department. Mrs. Allen is hardly a beginner, but she does not wish to pose as an expert—just yet. Her department will be of special interest to the beekeepers in the great Southeast, to the beginners in all parts of the country, and to all who love good poetry. Besides being an enthusiastic beekeeper herself, she is vice-president of the Tennessee Beekeepers' Association and will be in close touch with a large number of prominent honey-producers.

Aster Stores in and about Medina and Elsewhere

IN this issue, page 352, J. L. Byer reports good wintering on aster stores at one of his yards. In this locality the colonies that have had access to these kinds of stores (or what seemed to be the same) showed up dysentery and spring dwindling. Some colonies died outright, and many are weak. When the colonies had good stores, free from aster, there was universally good wintering.

We hardly know how to account for the difference in the asters of Canada and those in the vicinity of Medina, unless there is some other weed that grows in Medina Co. that does not grow in the vicinity of the

Byer bees. This raises the question whether aster honey was the cause of our trouble, or something else that bloomed at about the same time. As there are many different kinds of asters, there are of course several different kinds of aster honey. Some of them may be good while others are bad for wintering.

It will take further investigation before we can arrive at definite conclusions. But A. J. Halter, in whose vicinity we had a couple of yards of bees in the aster swamps of Summit Co., warned us to look out for those aster stores. We knew the general bad reputation of aster honey. Those that had the most of it were sent down to Virginia. The rest were left at Medina, with the result as already stated.

Massachusetts Apiculture

THE president of the National Beekeepers' Association, Dr. Burton N. Gates, of the Massachusetts Agricultural College, is the author of a paper on "Beekeeping in Massachusetts," which has been published as Bulletin No. 75 of the Federal Bureau of Entomology. A sketch of this nature, not attempting too much, is particularly valuable for the study of conditions in a locality, and takes its place among a number of similar highly valuable reports of state beekeeping, which, taken together, give a comprehensive view of the situation in the whole country.

Colonial apiculture had its beginning in Massachusetts as early as 1644, but we hear little of it from that time until the beginning of the last century, when what little progress it may have made all but succumbed to a series of attacks by disease. Langstroth's epoch-making invention in 1853 transformed beekeeping in this state just as in all the rest.

Dr. Gates believes Massachusetts needs "fewer but more proficient beekeepers who will undertake the work along this line." The reported average of 5½ colonies to the beekeeper is far too small; but if it were very greatly increased many would have to go out of the business on account of a lack of forage for the bees. His figures reveal the fact that half the beekeepers quit the business after about five years of the pursuit. Probably this proportion would hold general in other states.

The room for improvement is shown most strikingly in the conclusion that about one-fourth of the beekeepers still hang to the use of old box hives. With the advent of the modern professional beekeepr, with his standardized equipment and efficient methods, this figure is doubtless approaching zero as the limit.

The author reviews the phase of beekeeping most peculiar to Massachusetts. In 1909 there were at least one hundred and eighteen greenhouse cucumber-growers. Each of these used about eight colonies to an extensive crop. He believes over a thousand colonies are destroyed in this manner every year, since each colony is fully ruined after a year of use. The waste of this condition could be improved by practical beekeeping methods among the cucumber-growers, and a great deal of expense saved.

The Beekeepers of Imperial Valley, California, not "Dogs in the Manger." A Wonderful Bee Country

WE had the privilege of spending one day in the wonderful Imperial Valley of California. This valley is surrounded by miles and miles of desert and mountainous country that can never be irrigated, for the simple reason that it cannot be reached by water. In fact, the valley is a mammoth oasis of four million acres under cultivation, with two more million to follow when water can be got on to it. The soil is wonderfully productive—deep and rich; in fact, the territory has been called "the little Nile of the Western Hemisphere." We doubt if there is another spot in the world its superior. It will grow practically every thing. It is one of the most wonderful alfalfa districts in the United States; and that means it is a wonderful bee country. But, like all of these bee paradises, it has its drawbacks. It is excessively hot there in the summer time. It is already overstocked with bees and beekeepers. The alfalfa honey there is darker than the same kind of honey produced in Nevada and Colorado, and hence brings a lower price.

The fact that Imperial Valley is quite isolated by a dry stretch of forty miles all around, has enabled the beekeepers of the valley to prevent the importation of bee disease. If it is once free of European and American foul brood, there will be no danger of either of those diseases getting a foothold, providing the importation of bees can be stopped. Accordingly, taking advantage of the California county foul-brood law, the beekeepers of Imperial Valley have stopped all importation of honeybees into their county that have either had disease or which came from a locality where disease was present. The unpleasant duty and responsibility of enforcing this law fell on Mr. A. F. Wagner, foul-brood inspector of

El Centro, in the very heart of that wonderful country; and because he has enforced the law to the letter he has called down on his head the wrath of the beekeepers of other counties. Indeed, the beemen of Imperial Co. have been accused of playing the part of the dog in the manger. It is but natural that the "outsiders" should complain of unfairness. On the other hand, when one talks with the "insiders" he can see that there is some justice in their claims.

We met several prominent beekeepers of the valley and discussed this whole question. They deny that they are opposed to the importation of bees from other localities providing those bees are healthy themselves, and providing also they come from locations where there are no bee diseases. They freely acknowledged that they had stopped shipments into their valley because the bees in question came from localities where bee disease was rampant, and they insist that they will do it again. Their condition, they contend, is different from that of any other county in California in that it is surrounded either by barren mountain ranges or deserts. There is no possible chance of bee disease coming there unless it is imported by direct shipment.

Their valley is practically free of disease, although occasional cases of it crop out here and there; but through the systematic efforts of the inspector, Mr. Wagner, they are hoping to stamp it out entirely. That they could never do if they allowed indiscriminate shipments into the valley.

They admit that they have a wonderful bee country, and say that any man who desires can come into their midst and bring bees, providing those bees can show a clean bill of health, and providing it can be shown that the locality whence they come is free from disease.

Later on we shall be glad to present some photos of some of the leaders in that valley, and some of the wonderful erosion that has taken place in that country when the water broke loose and filled up the Salton Sea Basin. This was formerly a barren hot dry basin below the level of the sea. It is now, owing to a blunder of an irrigation company, a big inland sea. Hundreds of fine ranches or farms were literally washed away and a new river bed established. This "blunder" was both a blessing and a curse to the valley. Those who were not hurt do not care, and those who were have filed damage suits. When boys or men fool with a hole in a dyke or other barrier to a big water supply they should be careful what they do. In this case millions of dollars of damage was done.

Successful Co-operative Experiments

THAT the beekeeper who looks beyond the end of his nose is the man who gets the big honey production is shown by the results of experiments reported to the Ontario Provincial Apiarist. A unique policy is that of the province in sending out standard material and directions for carrying on a definite experiment, to all who desire to make the experiment and accurately report the results. While not listed as such, the whole plan is in itself an experiment to prove that the beekeeper interested in the progress of his science actually averages more than twice the efficiency of the indifferent fellow. This was shown in reports from 541 experimenters.

These 541 had an average of 28.6 colonies each and in experience varied from one year to forty. Hives of every variety were reported, but more than half were Langstroth. Pure Italian colonies nearly equaled hybrids and blacks together, a large increase over last year.

The experiments concerned prevention of natural swarming in comb and in extracted honey production by holding the colonies together, the prevention of natural swarming by manipulation of hives instead of combs, the method of spring management, special inquiries in races of bees, and the "smoke" method of queen introduction. The last proved entirely satisfactory with two-thirds of the experimenters.

Experiments for 1915 include the starvation and "smoke" plans of introducing a laying queen to a whole colony, shipping and introducing combless packages of bees, and the use of the wire-cloth bee-escape boards for removing bees from supers.

The U. S. Weather Bureau Maps; How they may Enable us to Forecast the Honey Yield, both in the East and West; What shall the Harvest be for 1915?

WE have been getting from the general Government, for some time back, at the suggestion of Dr. E. F. Phillips, of the Department of Agriculture, daily weather-maps showing the isothermal lines of temperature in every portion of the United States, the direction of the wind, and the height of the barometer. The isothermal lines are shown by red lines giving the temperature of every day of the year at 8 o'clock in the morning; and it is astonishing how the isothermal lines will move from north to south. For example, on April 20

the temperature at Portland, Me., was the same as that at Atlanta, Ga.; and the same line on the same day ran through Chicago and Kansas City, almost around to San Antonio, Texas. In other words, it was just as warm in Portland, Me., and Chicago, at 8 o'clock, April 20, as it was at Atlanta and San Antonio. On April 18, the same isothermal line of 50 degrees started from Portland, went down to Asheville, N. C., away up to Chicago, Alpena, Mich., and clear up to the northern part of Lake Superior.

The barometric changes are no less freaky. The area of precipitation or slight rains is shown by a dark shading. Very often when we get a rain at Medina we wonder if there was only a local rain, or whether it covered a large portion of the United States. By consulting these maps two days afterward we can tell exactly how far our Medina rain extended. Two weeks ago the maps showed that the April showers covered all the eastern states, the entire lake region, and extended down to a narrow line covering the territory immediately surrounding New Orleans. A few days afterward this area of precipitation kept getting smaller and smaller until it disappeared altogether.

During the last few days it has been a little cloudy, and we hoped it was going to rain, for our rheumatic bones seemed to feel that way. There was a very light sprinkle with cloudy sky. These Government maps showed that for over a week almost the entire United States was showing a high barometer—that is, no rain. In fact, the map was practically white all over, and it has been so for a couple of weeks back. (White means no precipitation.) We now know without any guesswork that there has been no rain to amount to anything in the United States for the last ten days. Already letters are coming in to show that it is getting dry. The farmers in our locality are complaining that the wheat needs rain. When wheat suffers, the clovers suffer. It is not too late yet for rains to come so that the clovers will yield a crop of honey; but we are getting near the danger-line. Unless rain comes within a few days, and that, too, over a large part of the United States, there will not be much clover honey in the United States. Already we hear of forest fires in Michigan and Pennsylvania, and these fires rarely occur unless it is getting pretty dry.

The failure or partial failure of the clover crop will have a decided tendency to boost prices on honey. The western beekeepers in the irrigated regions may well smile, for what is bad for the eastern brethren is often a good thing for the western beekeepers.

But Mr. Frank Rauchfuss, an authority on Colorado alfalfa, says there has been an insufficient supply of snow in the mountains; and when we saw him he feared that the alfalfa yield would be curtailed somewhat, if not short. In this issue our California correspondent speaks of its being a little dry in the sage region, notwithstanding the heavy rains early in the season. Our Weather Bureau maps show that there has been but very little rain in the sage districts of California during the last week or ten days. We were notified when on the western Coast that there might be ever so much rain for the sages early in the season; but unless there was a good shower just before or about the time they come into bloom the sages might fail. It is not too late at this writing, April 21, to get the needed rains in California and the central states.

Later, April 23.—Some fine rains with warm weather have come in the nick of time.

Still later.—General light rains on the 22d fell in northeastern Ohio, Indiana, Illinois, Kentucky, Tennessee, Missouri, and as far south as Alabama. There were also rains over the whole of California. Whether these were enough to help out the sages and the clovers we cannot say. There were no rains for the same period in eastern United States, comprising New England, New York, Pennsylvania, and Michigan.

April 25.—The rains have come for New York and Pennsylvania. Michigan still dry.

PROSPECTS IN THE CLOVER AREA.

In our next issue we shall be able to tell the story. The practical bearing of this whole thing is its reference to the honey market—that is to say, the Weather Bureau maps, we hope, are going to enable us to forecast the honey crop, both east and west; but it should be said that in the irrigated regions, and where high mountains are not too far away, but high enough so they hold snow the year round, the honey crop is almost a sure thing; but in order to hold snow the mountains must be somewhere about two miles high above the level of the sea. This is one reason why the Rockies and the Sierra Nevadas furnish such immense quantities of irrigation water from the melting snow for the valleys beneath. Very often there will be a severe drouth in the eastern states when the constantly melting snows of the mountains cause the valleys to blossom like the rose of Sharon.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



ANOTHER sign of laying workers may be added to those on page 312. It is to find an egg laid upon pollen.

F. GREINER, p. 333, says bait-combs result in pollen-laden sections. They don't here, friend Greiner.

G. M. DOOLITTLE'S description of a piping queen's performance, p. 312, is the best I've ever seen. But I'm surprised that he has never "heard a 'pipe' from any queen while she was on any other place than a comb." A queen often pipes in a cage with no comb.

EUGENE SECOR has had none of the poetry dried out of him yet. In a note dated March 16 he says: "Every thing here is yet asleep. No alarm has been sounded by robin or bluebird. But the bees in cellar have shaken off their winter stupor, and are fretting to frolic among fragrant flowers."

CHALON FOWLS quotes Ira D. Bartlett as saying 90 per cent fail in beekeeping, and exclaims, "O Ira!" Then he coolly reads out of the list of beekeepers all farmers keeping a few bees who have a hundred times more capital invested in their farm or stock. O Chalon! Just how many colonies should a man have before he should be called a beekeeper, anyway?

ASTER stores are blamed for winter losses. Why don't you train your bees to let asters alone? Asters are plentiful here, but my bees practically neglect them, and they came out of cellar in fine condition April 6. [It is not every year that asters yield honey; and it is not every locality where they secrete much nectar. If we had fed our bees on good sugar syrup or good honey and kept them at home last fall, instead of hauling them ten or twenty or even fifty miles to the aster swamps, we should have been better off. The asters are all right; but the stores, as a general thing, should be used for breeding, and not as a winter food. —ED.]

DENATURED sugar is of great interest to European beekeepers because of the high duty on sugar. But how much could we gain that way? I wish, however, there were a law against feeding bees any thing but deeply colored sugar, so it would show plainly if any of it should get into the surplus. [Members of the National convention at Denver thought it was wise to go slow in making recommendations to the national Government to provide for denatured sugar to be used for feeding bees. Possibly there would be no very great financial gain—especially so when sugar reaches its normal price after this senseless war is over.—ED.]

L. S. CRAWSHAW, that breezy writer of the *British Bee Journal*, p. 95, says: "Precisely what some few of us 'retrograde writers' have maintained in spite of abuse is that early queens, raised under the natural-swarming impulse, are the best." Now, that isn't a bit kind in you, L. S., to be scattering doubts and fears among my hopes and longings. Here I've been rejoiced to find now and then a colony quietly superseding its queen, with no inclination toward the swarming impulse, natural or unnatural, but bending its whole energy toward piling in the honey, and thinking that a queen resulting from such a supersedure was equal to the best, and now you would have me believe it would be still better with some "impulse." "Didn't happen to think of that sort of case?" All right; send around a small boy with an apology, and we'll be friends again. I'm heartily with you, that when, under the most favorable conditions, a colony rears queens in preparation for swarming, the queens reared under that "impulse" cannot be improved by the intermeddling of any two-legged creature so long as the young queens are reared from that same old one. But please remember that, under natural conditions, *every* queen is superseded by the bees before she dies, and that the superseding impulse is just as natural as the swarming impulse. Swarming may or may not be, but supersedure there *must* be if the colony is to continue. So when it's the regular business of old dame Nature to rear queens for superseding, wouldn't you expect a good job?

Now let me say what further I believe, and I'll be glad if you agree. Take a broad view of the field, or, rather, of the apiary. Here are 100 colonies, having all degrees of inclination toward swarming. I can leave them to their own sweet wills year after year, and each will have a queen reared under the swarming impulse. Or, remembering that however good the swarming impulse may be for queen-rearing, the less of it the better for honey-getting, I can take the matter into my own hands and rear queens from some colony with never a swarming impulse, but strong on storing. I believe I can get bigger crops by taking the latter course. I believe I have done so.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



I have just returned from visiting the north yard referred to at different times during the past winter, where the 250 colonies were winterly mainly on aster honey. The bees had no cleansing flight wintered mainly on aster honey. April 7, and, much to my surprise, every colony in normal condition last fall is alive at present, and not a spot of dysentery in the whole apiary. More particulars later.

* * *

At this date (April 12) it looks as though bees have wintered better than anticipated in my Notes for April 1. Heavy losses are reported only where little feeding was done last fall, and in some cases where natural stores were bad. Our own losses seem to be confined to two yards where about fifteen colonies have perished, and in these cases abundant stores were present, but granulated solid. The bees broke their cluster early in March, with combs solid with this poor stuff.

* * *

Mention is made on page 173 about a ten-pound pail, used for a boiler for a steam-heated knife, bursting and severely scalding the person using the knife. The warning is not out of place, as one needs to be careful. During 1913 we had a similar experience, but no one was hurt. We use a small kettle, and the top is fitted in tightly by placing a few thicknesses of cotton under the cover and then pressing it in. Once the knife became clogged, and this top acted as a safety-valve, blowing out so forcibly that it went to the roof of the building. Mrs. Byer was sprayed a little with the hot water, but received no injury.

* * *

This is the time of the year when letters come in asking about clipping queens. The subject has been debated so much that it is pretty well settled, and the verdict is apparent from the fact that about 90 per cent of the commercial beekeepers, at least, follow the practice. Just a word of warning to beginners on this question: Do not clip part of the queens in the apiary and leave the rest. Clip all of them or none. Space forbids at this time giving more reasons for this advice; but if the beginner is at all doubtful as to its wisdom, let him try the partial method; and if a bad swarming season should ensue, he will understand all about it by the end of the season.

My father left North Carolina for home April 7, and at that date the bees there were working on the soft maples. On April 8 our bees (at home) were getting pollen and nectar from the same source. This is an unusual condition indeed, as other years when father has been in the South there has been at least a month's difference in the time of bloom of south maples as compared with us in Ontario. If this has been general all over the South I would surmise that it has been a poor year to move bees down there to have them build up for increase and moved back north again later in season. I sincerely hope conditions have not been so backward in the vicinity of the Dismal Swamp. Vegetation was further advanced on the date mentioned, in the vicinity of Cincinnati, than it was twenty miles from Asheville, N. C.

* * *

Glad for the caution to shippers of queens and bees by the pound, as lately given in "Special Notices," Feb. 15. Especially should shippers of bees by the pound be careful in sending bees long distances. While many have come to Ontario in good condition, many have come otherwise, and shippers should either be able to prepare the bees so as to be sure of safe arrival, or else be prepared to make good all losses. One of the great troubles is getting quick clearance from the customs office nearest the beekeeper getting the pound packages; and from past experience, if getting any such packages I believe I would have them sent to Toronto and then make it a point to meet the shipment and bring them out the twenty miles by auto or other conveyance.

In 1913 a young man near me got quite a large shipment from a point as near as Michigan. They came to Toronto; and by reason of a lot of red tape, they actually lay there for two days. The result was a lot of dead bees; and although claims were made on the express office, up to this time not a cent has been paid to the buyer of the bees, and he just lately received a letter saying no payment would be made. For a private individual to get after an express company is out of the question, so I suppose the beekeeper will have to bear the loss.

* * *

"What a difference between the North and the South!" exclaims our friend from Texas, page 222, March 15. Yes, there is

Continued on page 355.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



There is little danger of disease from stray swarms if hived on foundation. The lapse of time before the queen can begin laying removes any likelihood of disease being carried.

* * *

Hot, dry, electric weather the past two weeks has caused beekeepers some worry. Some indications of rain are now developing, and it is to be hoped we get sufficient to keep the surface moist.

* * *

Out of all the colonies requeened last season, not one queenless colony has been found; while ten per cent of the two-year-old queens have disappeared during the winter and spring, leaving fertile-worker colonies in most instances.

* * *

Economy in bee time is really an important factor. Weeds in front of hives, an entrance too small, an alighting-board too narrow, and hives set high off the ground, allowing the wind to toy with them, all have a tendency to retard their progress.

* * *

After being free of foul brood in my apiary for five years, I have suddenly discovered a case of American. They were promptly destroyed, and I fear no further trouble. Black brood is cropping out badly in many sections, some places being extremely bad, and apparently hard to get under control.

* * *

While I was shaking combs to get the queen below an excluder, a considerable amount of nectar fell on a board which I was using in front of the hive to catch the bees as an alighting-board. It was very thin, and I supposed it would evaporate, leaving only a sticky place on the board. To my great surprise, after it had remained in the sun all day I found it to be thick heavy honey with not nearly the amount of decrease by evaporation I had expected.

* * *

Will wax-moth work on wet combs? Now you novices in the business, be careful. Here comes a man who says moth will not work on wet combs; another says they will. What are you going to do? Take a bit of advice from me. Put your combs away dry and clean, and have them in shape when needed. Wet combs catch dust and dirt, harbor filth, and will be riddled by moth just as quickly as dry ones if there is food for moth in them.

* * *

I have been trying out a new scale for buying swarms. It does not pay to give a fixed price for swarms of all sizes. Some are worth no more than half the amount of others. Their value differing so much at different times of the season, it is hard to make a season's scale; but the idea is to pay a certain price up to six or seven pounds, after which an increase of one-half is added to each additional pound; for example, ten cents per pound for the first five pounds; fifteen cents per pound for each additional pound up to ten pounds, then twenty cents per pound for all above ten pounds.

* * *

There has not been so much swarming in recent years as is now going on. Every colony seems bent on swarming, whether it be in the side of a house, a neglected one in the back yard, or those under daily care. Swarms are flying in every direction, entering houses by the score, and causing the timid housewife much worry. I have captured sixteen during the past ten days, some by paying a small sum in cash, and some by answering the pleadings of people begging to have them taken away. I attribute the trouble to the advanced condition of bees when the nectar began flowing freely, which seemed to set them wild for swarming.

* * *

There has never been, to my knowledge, a greater amount of nectar in the orange than at the present time. Bees are working it to the limit, and I look for the greatest crop of orange honey ever harvested in this state. The sage is not so promising as a few weeks ago, and I fear there will be much less from this source than has been figured on by many. Bees are flying miles over good sage-fields going to the orange. The plants seem to be less healthy than at one time, and the sage weevil is getting an early start with its work. Bees are paying very little attention to sage, but this may be partly due to the excessive amount the orange is yielding.

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



So many beekeepers in the great Southeast, and not a department in all GLEANINGS we could call our own! And the North and the West and the East, and the Southwest and the far West and the Northeast, all there at the gathering of the "localities," and no corner for a Dixie bee to hum! It was after the convention of Tennessee beekeepers that we cried out, and the editors heard our cry and said, "You, too, shall have a page." And that I understood; but when they said, "*You* shall have the page," that I could not understand. Only the editor can explain that. For in all frankness I am not a beekeeper of great experience. In fact, I am distinctly in the beginners' class. But, if my suspicions are correct, that may be one reason the editor asked me to take this page. Not only a new section, but also a new class, they would thus have. So while this page is to be especially for and about the Southeast, it will also aim to be of interest to beginners, and to women beekeepers — a sort of Dixie bee that hums contentedly within its proper geography, but waves its wings tenderly over the amateur and the woman apiarist.

AN INVITATION

In May come down to Tennessee,
Tennessee, Tennessee!
In May come down to Tennessee—
It's honeysuckle-time!
We'll drive among the winsome hills
Where tangled honeysuckle fills
The cup of scent that spills and spills
In honeysuckle-time!

The mockingbirds will all be singing,
Redbirds flashing round and flinging
Flaming colors through the springing
Honeysuckle-time!
The murmur of the bees, that slips
Along the wind from blossom lips
Will thrill you to your finger tips
In honeysuckle-time!

In May come down to Tennessee,
Tennessee, Tennessee!
In May come down to Tennessee—
It's honeysuckle-time!
You'll think the magic of the bee
And wine-like air and sun-bright tree
Is fairyland. *It's Tennessee*
In honeysuckle-time!

A high-school teacher, writing back to her pupils from Europe, once said, "I hope you may all take this wonderful trip some day; but my solemn advice is, *never do it for the first time.*" If one could only write a page once a month for GLEANINGS, and never do it for the first time!

CLOVER PROSPECTS AFTER THE COLD SPRING.

Our winter might have been borrowed from the North, so long and cold it has been. Even as late as March 30 it snowed all day. But throughout this part of Tennessee the bees seem to have wintered excellently—unusually well, some beekeepers judge (most of them on aster honey at that). But they are late building up. In one of our hives we could not find the slightest evidence of brood-rearing as late as April 4, though another right beside it was well filled with eggs and very young brood. All we looked into had plenty of stores.

Any way, I fancy we shouldn't have opened our hives that day, as the bees, with not a blossom in all their world, went wild over the honey odors, and the little yard was presently in an uproar. We apologized to the defenders, expostulated with the robbers, piled straw over much-contracted entrances, sprayed it with carbolic water, and recorded another lesson learned. To-day (April 7) the old plum in the back yard is in full bloom, and the bees are making it ring with music.

We are hoping, modestly, for white clover this year. Last year there was none in this section, owing to the drouths of 1913 and 1914. There are no blooming prospects now; but from adjoining counties come reports that it is showing up a little, and surely I saw signs of some to be, out on the commons where this end of town runs into country. One of our most successful beekeepers fears that the bees have been so held back by the late spring that they can scarcely build up a strong working force in time to do much good if the clover does materialize. But we are all hoping.

TENNESSEE FIELD MEETINGS.

"What is an association for, if not for co-operation?" asks Mr. W. B. Romine, of Pulaski, Tenn., the new president of our state association. And that seems to me a splendid association spirit. Some of the members in this neighborhood are going to try getting together informally several times during the approaching summer to get better acquainted and talk shop and learn, learn, learn. A bore to those who already know? But of all whom I know, those who

know most are most eager to know more! It's only a very little knowledge that's a satisfying thing. With this plan in mind, A. I. Root's account of the weekly meetings of beekeepers in Florida was particularly interesting. (March 15, p. 251.)

Mr. Buchanan, the secretary of the state association, informs me that some such well-known beemen as Dr. Phillips, Prof. E. G. Baldwin, J. J. Wilder, Adrian Getaz, and others will be in Chattanooga April 28, 29, in connection with the Southern Educational and Industrial Conference. That surely sounds attractive.

FOUL-BROOD LEGISLATION SAFE.

The beekeepers of Tennessee who were not present at the convention may not know what a splendid fight was put up in Nashville in the winter, when some of the legislators tried to repeal our foul-brood-inspection law. Dr. J. S. Ward, the state inspector, was on the scene day after day, with statistics and general bee-booster literature that was eye-opening to some of our law-makers who had not guessed the real value of bees. And with the help of Mr. Ben G. Davis and a few others Dr. Ward and the Dixie bee won the day.

* * *

Over in Winston-Salem, N. C., is a new organization, the Forsyth County Bee Club. According to County Farm Demonstrator Bruce Anderson it is an enthusiastic young club that expects to grow and produce some real results. One of their rules requires that "members must keep records of their colonies—that is, cost of colony, time of swarming, cost of materials, and amount of surplus secured." Not a bad rule, either.

In a letter recently received the writer remarked that the name at the head of this page attached to my verses did not of itself signify either Miss or Mrs. Well, if any one has the time and patience to read all the way through the following verse, that point may be made clear!

AN OLD-FASHIONED DRIVE.

My sweetheart took me out for a drive
On a day like a dream come true.
We went right into the heart of the hills
Where the sunlight slanted through;
Where old rail fences and low rock walls
Were hung with ivy and moss,
And a pebbly stream sang low in its dream
Till we waked it, splashing across.
The road was a tangle of sun and shade
Under boughs of sunlit green,
With the hazy hue of the distant blue
Where the far hills rose between.

The dogwood-trees were white with flower,
And a sudden sweetness blew
Where the delicate blossoming locust swung
Or the honeysuckle grew.
The woodpeckers tapped and the brown thrush sang,
And, darting along by the fence,
Were bluebirds and wrens and orioles
Exchanging their compliments.
But sweetest of all were the mockingbirds;
They shook out their wonderful notes
With the rapture that springs from a heart that has wings
And a song-bewildered throat.

We stopped at a home in the heart of the hills,
Where the hum of a million bees
Softened the silence with silvery sound
In the scent of the blossoming trees.
A home in the hills and the humming of bees!
A glad content and a friendly hand!
The glad content and the hum of the bees
Will linger long, for we understand.
"Did you like the drive?" my sweetheart asked;
"As well as our other drives?" urged he.
"This drive was the best," my heart confessed,
"Of all our drives since you married me."

NOTES FROM CANADA.—Continued from page 352.

a big difference, no doubt. During real cold weather I sometimes wish that I might spend the winters in a more balmy clime; yet, after all, no country has a monopoly of the good or bad features, and things are pretty evenly divided up, all things considered. During the beautiful cold and clear days of our past winter, to have mentioned going south to our young folks enjoying skating and other winter sports would only have brought a smile of contempt from them; and it is a fact that they prefer the winter season to the summer. While we might desire to be tinkering with the bees early in the season, yet the conditions forbid that here, and at the same time make it unnecessary to do any work at that time. Seemingly the bees get ready for the honey-flow just the same as where the working season is longer. The moth nuisance mentioned by L. H. Scholl is a very minor evil indeed in this climate, largely because the cold weather kills all eggs that are in combs stored away, and as a result we need have no fear of our surplus combs being troubled before we want to use them the next season. And then when it comes to the summer season, needless to say we have no desire to go south then, as it certainly gets warm enough up here to suit us without going any nearer the equator.

Beekeeping Among the Rockies

Wesley Foster, Boulder, Colorado.



Early in February bees were wintering almost perfectly; but March was a cold and stormy month, and colonies are weaker at present than two months ago. The weather has now warmed up, and most colonies are breeding well. The average colony has brood in three combs. It is still early; and with good weather breeding will go on at a rapid rate. We have had a great deal of spring moisture, and the precipitation so far this year is an inch above normal. The snow in the mountains is short, and August will probably be a dry month unless we have rains, which is not likely. Losses have been reported to me from western Colorado as arising from granulated honey in the hives.

* * *

MONTANA FAILS TO SECURE APIARY INSPECTION.

Word has just reached me that the apiary-inspection bill before the Montana legislature was smothered in committee. This bill was drawn by the legislative committee of the Montana Beekeepers' Association, and with the help of Prof. R. A. Cooley, State Entomologist. It was introduced rather late; but the opposition, it seems, came from a small number of beekeepers who have the idea that it is more profitable to let foul brood clean out the small farmer beekeeper, and leave the territory free for the specialist.

* * *

HOW FAR BEES WILL FLY AND GATHER HONEY.

My experience seems to show that bees will not go three miles and gather nectar successfully from alfalfa. I have had apiaries less than three miles apart that would vary from no surplus to 60 lbs. of comb honey—a mesa a mile wide intervening. I have seen a hailstorm extend its ravages several miles in extent and a mile wide, and reduce the surplus of apiaries in its path by 50 per cent. I do not believe bees work successfully on alfalfa much more than a mile and a half. The reason probably is that bees have to work a long time to get a load; and if they have to fly too far from home they decide it is too much sugar for a cent.

* * *

SPRAYING-COVER-CROPS AMENDMENT LOST.

The amendment to the Colorado apiary-inspection law failed of passage. This amendment provided for cutting of cover crops that might be in bloom before orchards in which they grow are sprayed. There was opposition to the bill among some fruit-growers. It is possible that, with more work, the bill might have been passed. All that now can be done is to carry on a campaign of education and publicity. Every county association should have a committee to look after the interests of the beekeepers and confer with the fruit-growers, so that no needless losses may be sustained. By careful selection of tactful beekeepers much good can be done and damage averted if work is begun in time.

Losses will undoubtedly be suffered this year, and the support and co-operation of all beekeepers should go to the beekeepers located in the commercial-fruit districts.

Many beekeepers will doubtless help their fruit-growing neighbors cut the clover, and others will only need to confer with the fruitmen to avert the trouble.

* * *

EXPERIENCE AND TRAINING NECESSARY FOR INSPECTORS.

I have seen a few cases where inspectors have caused unnecessary loss by their zeal. Let me say that an inspector must be zealous, but in some cases the cure has been worse than the disease. Inspectors who have had ten years' experience with foul brood are not unduly drastic in their orders. Burning up hives and combs of all diseased colonies is unnecessary unless the owner refuses to care for the treated colonies. Radically different tactics should be used if foul brood is found in a new and uninfected district than if it is found in an old infected area. Severe measures are defensible to protect clean districts. I have known cases where beekeepers have been fined, and their infected hives and combs burned, because they had not treated diseased material that was stored in a safe place where bees could not get at it. A reasonable length of time should be given to clean up, and the owner should be allowed to save the hives and wax if he is competent. An officious inspector is not a credit to the beekeeping fraternity. It would be a fine thing if every inspector could be given a month of coaching before taking up his duties.

If some method of federal inspection for all interstate shipments of bees could be secured it would help control the spread of bee diseases.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



THERE IS A DIFFERENCE IN MEN.

"Say, Doolittle, why is it that you always write so rosy about beekeeping? Even when you tell us about the hard work and stings which come to the man keeping bees, you do it in a way that makes the apiary look enchanted. I have been fairly successful, and was quite encouraged until I ran across an old beekeeper a few days ago who gave me such a sorrowful account of his life that I have been wondering if I had not made a mistake in starting with bees at all."

Well, now, if I have put too rosy a side to the world in my writings, I am sorry. I have tried hard to keep myself down to just what I have done, and to my results. Perhaps I should have given only the financial side; but when the fun side looms up higher above the horizon than the financial, it is hard for me to pin myself down to the sordid idea of dollars and cents only. Two or three years after I started in beekeeping I became acquainted with two men who had kept bees for a score or more of years. One of them was as sour as a pickle. They told me this man had opportunities when he was younger, but he never seemed to take advantage of them. Since he took up one hive after another till there were hardly two hives of the same pattern in his apiary, so that when he wished to exchange frames of brood or honey from one colony to another, nothing would fit; and when it came to supers they could not be exchanged, nor would they fit more than one or two of any of the hives. When swarms came out he had nothing for them; and while he was working to get things ready the swarm would leave for parts unknown. The grass and weeds grew up in front of the hive entrances. Covers, bottom-boards, and hives were thrown down and left as they were thrown. In one corner of the beeyard there was a pile of hives, supers, and frames of comb that had been there ten years or more when I first visited him. The bottom of the pile was pretty well rotted, and the combs eaten with moth-worms, while more was being added to the top each year.

The other man was very different. His hives were all of one pattern. All of his covers, bottom-boards, and supers were a perfect fit on the hives or on each other when stored away in the bee-house. When in use his hives always stood level while the combs were being built so that all were true in the frames or the sections. Each row of hives was as straight as a line could make them. Did the action of frost during the winter cause the stands to get "out of wind," they were all straightened up during the early days of spring. At the same time every thing was picked up, so that the grass and weeds could be cut and kept in check later when the bees were at work on the white-clover and basswood bloom. And when doing this he was always whistling or singing, to the enjoyment of himself and all who saw or heard him.

When I asked him if he did not get tired of the almost endless round of work necessary to keep his apiary in apple-pie order, he smiled and said, "Certainly not. It has been a pleasure to me all these years, because I find my chief joy in the apiary."

When I questioned him regarding the financial side of the matter he replied, "That is only secondary. What I mean is that the man who takes pleasure and joy in the apiary, or any undertaking in life, for that matter, puts enough spirit into it so that, barring accidents, a financial success is certain to follow." Right here hinges the difference between the successful beekeeper and the unsuccessful one. The former takes the stings and the hard work with a smile on his face as he looks forward toward the evening tide of life, when upon what he has accomplished shall be written "Well done." In the meantime the other grows bitter because he has used no personality in any of his undertakings. The latter has the same chance offered him in the beginning, but looks only on the financial side, and does every thing in a slipshod way. In other words, he can't find the joy and pleasure.

In my farming days I remember a neighbor who whistled and sang as he followed the plow and harrow, even when he was so tired that he could hardly put one foot before the other as quitting time drew near. Sometimes he would stop a moment to look at the straight furrows which had been made during the day, and then across the valley to the farmhouse among the blooming apple-trees, where satisfaction would come from the rest during the night. It is the joy and pleasure in the doing which lifts the man and his work out of the drudgery so many are complaining about. You can not find any great man who did not find his greatness in the joy in his work.

GENERAL CORRESPONDENCE

SOME ADVENTURES IN REQUEENING 200 COLONIES

BY FLORA M'INTYRE

Last summer we decided to requeen all colonies with two-year-old queens, and all that had shown any trace of European foul brood in the spring, making about two hundred in all. The next question was, "Who will do the work?" Mr. Hicks, who had had the bees on shares, was to give them up at the end of the season, and did not want the job. I said to the Mother, "We can do it ourselves. You and the School Girl can do the work with some unskilled help, perhaps. I will be Chief Adviser, and perhaps the Teacher will help." And so it came about that the Mother and I arrived at the ranch June 17, with a camp outfit and an A B C and X Y Z in case several years away from the bees should make us a little uncertain on some points.

The Teacher arrived next day; and on the 19th, work with the bees began. Mr. Hicks marked in the book the three best colonies in the apiary, from all of which we took larvæ for queen-rearing in the course of the summer. These colonies had resisted foul brood, and gathered several superfuls of honey each this year, when the apiary as a whole produced only about half a crop. Six colonies (which proved later to be too many) were made queenless for cell-starters, and two were discovered to be superseding. So we started two sticks of cells right away, and began our "cells started" record with

6—19 C 25 fr. D4
6—19 F 20 fr. D4

The fourth colony in row D was the breeder used. The Mother did the work in the apiary, while I, having had more experience with queen-rearing, and being too much of an invalid to work among the bees, gave directions and transferred the larvæ. No transferring-tools were to be located that first day; but we were too eager for the work to wait, so we improvised. A short search brought to light a chicken feather. This was quickly cut into the desired shape for transferring; and for handling the royal jelly the ever-useful hairpin answered very well. Later we purchased an ear-spoon. Wooden and wax cell-cups and cell-protectors were included in our baggage. The Teacher cut out the lower half of two combs, and drove two small nails into the end-bars, just far enough



Ready for work.

below the comb that remained to hold a shortened bottom-bar in place as in the illustration. On two bottom-bars shortened to fit into a frame she placed wooden cell cups and pressed a little wax-cup into each. I put in the royal jelly and the larvæ, placed the sticks in the combs and wrapped all up carefully to keep the temperature even on the way to the hives. The Mother put a frame each in the brood - chambers of C25 and F20, and the first day's work was finished.

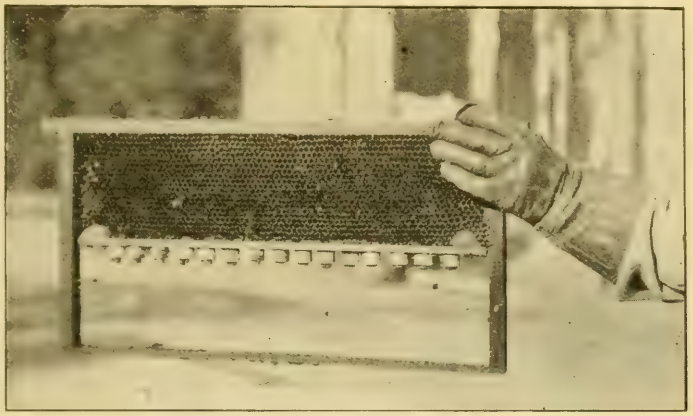
In August, when the job was nearly done, we felt that we had proven that it could be done by one woman who would not for a moment be called strong. After we had been on the ranch about two weeks she and the Mother worked together with half a day's help from Mr. Hicks in killing queens. Then the Teacher and the Mother left the ranch, and after that the School Girl did the campwork, some irrigating, and the beework alone under my directions. Of course she could not give the bees full time. So I think we averaged one woman in the bees for about two months.

The Teacher is one of those benighted persons who do not like bees. She worked for one day with the Mother killing queens; but her motions were jerky, and that made the bees insufferably cross. The next day she started work on her own hook; but after opening three hives and finding only one queen she left the apiary in great haste, followed by a cloud of angry bees. After that she devoted herself to the campwork, to getting the Mother's wardrobe ready for her vacation trip, and to irrigating the young orange-trees. Referring to the last-named work, which was done with a hoe and a hose, she said she did not mind "heavy plowing," but could not stand beestings. The Mother, who is past fifty, and bothered with "nerves," found that her trouble was much better than when doing housework with a number of people around talking to her. The School Girl, who is in her later "teens," found the work lonesome; and so differing dispositions make the same task unbearable, pleasant, or just tolerable.

I am forbidden to tell all of our mistakes and accidents, but perhaps some of our experiences, discoveries, and lessons learned will be of interest.

DILUTING ROYAL JELLY WITH WATER.

Mr. Hicks suggested that we dilute the royal jelly with water, mixing it thoroughly until it was thin and smooth like that which the bees give to very young larvæ. He said



Stick of cells prepared for the hive.

that he had had much greater success in getting cells accepted after he stumbled upon that idea. With our dry climate the small quantity of jelly that we put into a cell dries out a great deal during the few minutes that it takes to get a stick of cells ready and into the hive. So we followed the suggestion; and one day while preparing royal jelly I came upon some that had dried down into a hard amber-colored lump. Without giving it much thought I dropped it into the glass of water I had standing near, and went on with my work. Presently I glanced at the water, and was surprised to see that the once hard amber royal jelly had increased in size two or three times over and that it was no longer amber-colored but white. It was so soft, too, that I had some difficulty in fishing it out of the glass; and as it looked just like fresh royal jelly I stirred it in with the rest. No bad effects were observed. Several times after that I baited sticks of cells entirely with jelly that had dried hard, been softened again in water, and worked smooth. These cells were accepted exactly as well as those started with fresh jelly from an unsealed cell. We valued that discovery because we never could bring ourselves to tearing down one of our own nicely started artificial cells just for the royal jelly when the fresh article was scarce.

Once we tried transferring larvæ without royal jelly; but they looked very much dried before we got them into the hive, and,



Bees have no lack of clover near Union Center, Wis. Photographed by Mrs. G. W. Barge.

as we expected, no cells were accepted. Then I tried putting a drop of water into each cell before transferring the larvæ. The surface viscosity made it possible to float the larvæ as upon the royal jelly; but only four out of fifteen cells were accepted. I decided that there was probably too much water in the cells, so I tried another stick with the bottoms of the cells just dampened with water; but again only four cells were accepted. About this time the School Girl decided that experimenting made too much work for the results in the way of cells accepted; and as there was now plenty of royal jelly I had no excuse for trying any thing else. We know, however, that, although the royal jelly may be made as thin as milk, clear water is not satisfactory.

VARIATION IN THE ACCEPTING OF CELLS.

We found a great variation in the enthusiasm with which different colonies accepted our artificial cells. Some would habitually accept a dozen or more out of fifteen cells, while others would, time after time, give only three or four accepted cells. We soon learned not to blame ourselves for this, but to discard the lazy ones and retain as cell-starting colonies only those that accepted a big majority of the cells given.

We found that two good cell-starting colonies and a nursery would furnish about as many cells each day as one woman should handle. It is a great temptation, during the first few days, when the work consists only of cell-starting, to prepare a great number of cells; but finding and killing queens is the hard part of the work, and the part that limits progress; and as a woman should not try to find and kill more than twenty queens in a day, many more cells than that coming on each day would be a superfluity. There is no time for starting nuclei when the work consists of killing queens, introducing cells to colonies made queenless previously and starting more cells.

Dequeening should begin about five days after the first artificial cells are started, so that a ripe cell may be introduced in a protector, and the queen hatched before any of the natural cells in the hive have produced virgins ready to make trouble. By this plan the virgin from the artificial cell hatches late enough to be accepted by the bees, and yet in time to tear down the natural cells. Since the honey-flow was becoming slack when we commenced work, we were not bothered by having swarms go off with our carefully reared virgins, as we

doubtless would have been if there had been much honey coming in.

When we had finished dequeening we began starting a few nuclei each day until we had twenty, and into these we put our surplus cells, thinking they would furnish a sufficient number of laying queens to supply those colonies which should prove to be queenless when we inspected for layers. When the School Girl began inspecting, however, we saw that we would probably need more queens than our nuclei would supply, so we began starting one stick of cells each afternoon. (We always start them in the afternoon, when the air will be warm enough to prevent chilling the larvæ.) Since these sticks as they were removed from the cell-starting colony were placed in a nursery at this stage of the work, we were using only one colony as a cell-starter.

THE NURSERY.

Our nursery consisted of a strong colony with a queen below the excluder and two combs of brood lifted into the super. Our cells were placed between these brood-combs. We put two sets of nails in our cell-starting combs so that each one could hold two sticks of cells when placed in the nursery. When the brood in the first two combs was pretty well hatched we replaced them in the brood-chamber and brought up two fresh combs of brood.

As there was little honey coming in we fed the nursery slowly in the following manner: A corner of the cloth over the super combs was turned back a little to let the bees come up to our feeder, which consisted of a quart fruit-jar turned upside down on a saucer, with a little stick placed under the edge of the jar. Over this we placed an empty super covered with a cloth and hive-cover. We used this primitive arrangement in spite of the fact that there were several hundred regular feeders of two different types stacked up in the shop. It offered less opportunity to robbers than the outside style of feeder, and was more convenient to watch and fill than the division-board style. We fed sun-extracted honey thinned with water.

THE SMOKE METHOD OF INTRODUCING.

When the School Girl had finished inspecting and marking "L. Q.'s" and "N. L.'s" in the book she introduced all the laying queens we had in the nuclei by the much-lauded smoke method. We did not find this absolutely infallible; but even so we like it because it is so convenient, and works often enough to pay. Then she supplied all queenless colonies, including the nuclei, with cells, and we left the apiary August 19.

Some time later (Sept. 20) the Mother spent a few days at the apiary, where she inspected the colonies we left with cells, irrigated orange-trees, and doubled up to dispose of nuclei and queenless colonies. She reported a rather large percentage of "N. L.'s" where we put our last cells. It was too late in the season, I suppose, and some colonies had certainly been queenless too long. This year we hope to begin work somewhat earlier, especially if the honey-flow is short.

Ventura, Cal.

QUEEN-MATING NUCLEI

A Perfected System Developed for Economy of Operation

BY ARTHUR C. MILLER

How much does it cost to raise a queen? Possibly the professional queen-raisers have a fairly accurate idea; but those with whom I have talked have been unable to say what each part costs, or whether any one part can be reduced further.

Cell-production by several methods is fairly economical; and by one at least (the Fuller) is brought, seemingly, to the lowest terms. Introduction of virgins has also been brought to as near perfection as the business demands. Mating nuclei, however, are much more costly than they should be. The most costly are those of two or three standard frames; and the least costly, when properly used, are the "baby" nuclei.

HISTORY.

The use of small nuclei for queen-mating dates far back, just how far we may never know.

Jonas De Gelieu of Neuchatel, Switzerland, writing in 1814, after sixty odd years of beekeeping, carefully describes a nucleus box six inches square and the method of stocking and using it. He gives the credit of its origin to Schirach; and, as the latter was familiar with the usages of much earlier ages, it may date back away before his day. De Gelieu's nuclei were fitted with an assortment of five combs, some empty, some with honey, and one with brood, "especially maggots two to three days out of

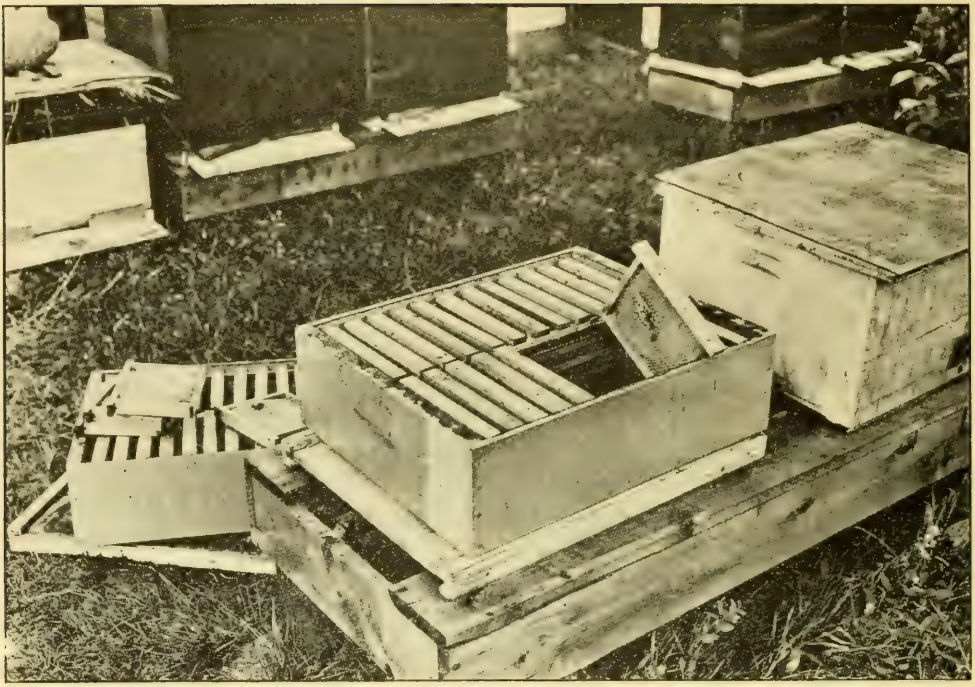


FIG. 1.—Stock chambers for nucleus hive outfit

the shell." These hives he stocked with one thousand to fifteen hundred workers, and shut them in with a "wire grating" for three days. These nuclei of De Gelieu were for raising as well as for mating the queens. We are struck by the remarkable similarity of this system with that described by Quinby in 1860.

Henry Alley appears to have been the first to operate them on a definite and extensive plan. Alley used miniature hives holding five frames, each about six inches square. These hives he stocked each season by pouring in half a pint, more or less, of bees, confining them for a day or two, and then giving them a virgin queen or a cell. But he also had a "stock" hive. This consisted of a body which held ten of the little frames. Three or four such bodies tiered up would hold a fair-sized colony and furnish him with brood for the little hives. But these stock hives were of awkward proportions. He could not successfully winter them out of doors, and even indoors the results were often a disappointment to him. So he depended mostly on bees shaken from combs for stocking his small nuclei. He recognized the value of a "stock" hive, but failed to make one successful.

Later E. L. Pratt, a pupil of Alley's, brought out a nucleus very much smaller than Alley's, and more thoroughly systematized, in that the frames were designed so several would fit within a regular L. frame, and were stocked with comb, brood, and stores in standard colonies. This made comparatively easy the seasonable stocking of the nuclei and the economical disposition of brood and bees at the close of the season.

Alley's nuclei were a great economy over the use of standard frames, and Pratt's were an advance over Alley's, but both called for an almost constant oversight. Alley's nucleus box and frames were substantial and easily handled, but he lacked a satisfactory "stock" hive. Pratt's "stock" system was practical, but his nucleus box and frames were frail.

The principal drawback to Pratt's system of using the little frames inside of standard ones for stocking was the time and trouble of adjusting or removing them, which was much aggravated by accumulation of propolis. Also at first there was much breakage of the small frames, but later they were made stronger.

Both Alley's and Pratt's nuclei needed almost daily attention, and each had to be alert that the little colonies did not get overpopulous and swarm. Taken all together, the troubles with the little nuclei are so many that the average honey-producer prefers to use nuclei of two or more full-sized combs each. And I understand that the

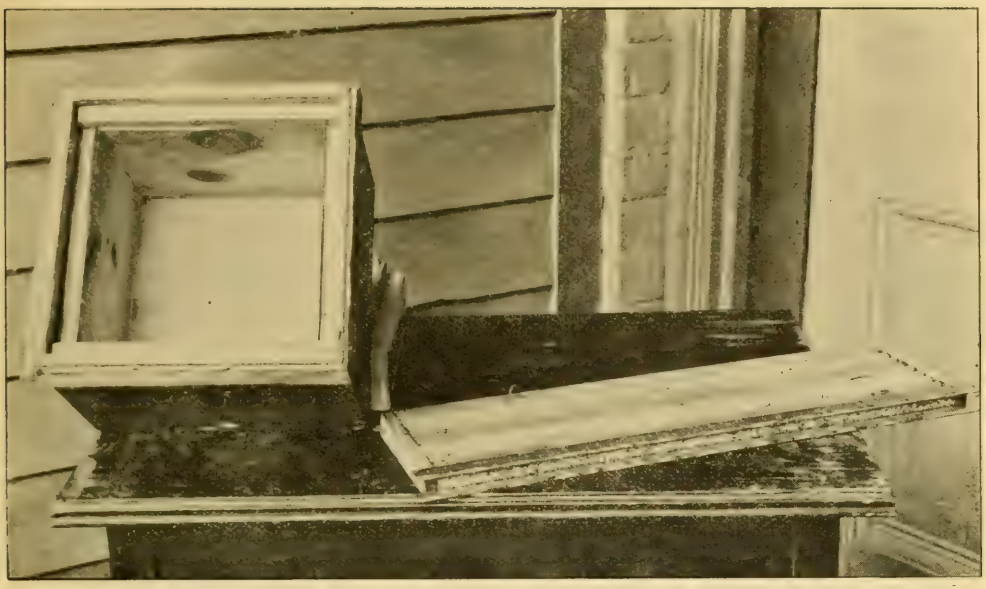


FIG. 2.—Slatted partition used in stock-chamber and nucleus hive, showing inside.

commercial queen-raisers who use the "baby" nuclei have more or less trouble with them.

Baby nuclei properly formed are a real economy so far as bees are concerned, for one good colony will make twenty-five to fifty, whereas it would make but about five if on standard frames. Besides cost of bees there is the difference in cost of equipment —an item of no small consequence. As an offset against saving in bees and equipment in using baby nuclei is the matter of labor in watching over and caring for them. Which is the cheaper?

I puzzled over that question for a long time. I wanted to use the little hives because of the economies, but I *must* be able to leave the little colonies to their own devices for days or a week, or even more at a time, and that seemed to be impossible. Little by little, however, I found out the laws underlying their behavior; and when I finally found that the "moist" sugars sufficed as food for them, as well as for full colonies, I had only to devise a suitable "stock" hive to have a complete system economical in every detail. For some years I have had such a stock hive and system, and I believe that I am warranted in considering it as low in first cost, and as economical in labor and attention, as anything yet described. I am not a commercial queen-raiser; and while the system is perfectly adapted to their use, I worked it out from the standpoint of the commercial honey-producer.

The basis was Alley's nucleus, which was slightly changed in dimensions to enable me to use the frames in standard fittings. The nucleus hive used by Alley was heavier than I thought necessary. The syrup-feeder arrangement I did not use, and the flat cover would not stay put without a weight or fastening. Also, in my location the cold nights and fogs called for a warmer hive, one better protected from external changes, and one in which a small lot of bees could keep things as they desired, as well as a large lot in a big hive. To accomplish this, and at the same time have it light and convenient, as well as inexpensive, was not at first easy; but the goal was finally reached, and the complete outfit and system is here described.

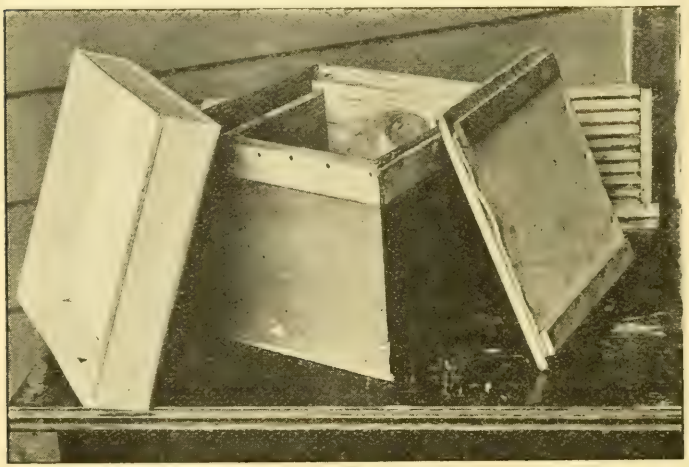
THE EQUIPMENT.

First, the "stock" hive. The floor is standard. The "bodies" are standard deep supers with rabbets along the long sides instead of along the ends (*i. e.*, supers for crossway frames). The covers are a standard super cover and a telescope cover. One to five "bodies" are used for each "stock" hive.

These "bodies" are arranged inside in the following manner: The rabbets are cut deep enough for metal rabbets to be used. Longitudinally through the center is hung a slat-filled frame having metal rabbets along each top edge. This frame is as long as a standard brood or super frame, and the tin rabbets are as long as the inside of the "body." Into the inside of the ends of the

body staples are driven, and the tin rabbets of the frame hang on these. The result is a slotted partition down the middle of the body, and the rabbets on it level with those along the sides, and the bottom of the partition is flush with the bottom edge of the body. The partition is ⅞ inch wide. The top slat is ½ inch thick, and the others are ¼ inch, and spaced ¼ inch apart. To prevent the partition from swinging, a staple is driven into the bottom of each end. They are allowed to project so they bind against the body ends. All of this will be plain by consulting Figs. 1 and 2.

The little frames, which are 5½ inches deep by 6¼ long, have short ends to top-bars; are end-staple spaced, and made of stock ⅞ inch wide. Top and end bars are ⅜ inch thick, and bottom-bar is ¼ inch thick. If I were making new ones I would use stock one inch wide. Twelve of these little frames go on each side of the partition and spacing, and supports are such that trouble from propolizing is reduced to a minimum.



Queen-mating nucleus hive showing outer and inner cover (a corner of the slatted partition used in the stock hive showing in the background.)

The nucleus box is shown in Fig. 3. It consists of two boxes made of stock ¼ inch thick, the outer box being 8½ inches square by 7⅛ inches high outside measure. The inner box is 7⅜ inches square by 5⅝ inches high, outside measure. Between the two at bottom, and around all sides, is a double thickness of wool felting. Metal rabbets close the top of the felt-filled space on two sides, and strips of wood are similarly used on the other two sides. The entrance is a half-inch hole bored on a slight upward slant, the under side of the inner end being flush with upper surface of the floor of the inner box. A tin tube lines the entrance passage, preventing air or moisture getting in between the boxes at that point. Frames hang side to the entrance. A strip of folded felt one inch wide is nailed about the upper edge of the box as shown, and this serves to make the cover virtually air-tight, and prevents its blowing off. The inner cover is a square board ¼ inch thick, the upper surface felt-covered and cleated. The outer cover is of good heavy tin, with hemmed edges, and painted white inside and out. It is two inches deep. All of the felt is lightly oiled with thin mineral machine oil to prevent the depredations of moths and to lessen the effect of moisture.

The feeders for the nucleus hives are simply miniatures of the division-board type. One of these filled with soft sugar is used in each nucleus. A feederful will usually last through the season, the amount consumed varying with the supply of nectar secured. Any of the fondant sugar candies will do as well; but where a satisfactory moist sugar can be bought it is easier to use and is cheaper.

Except for the white tin covers, everything pertaining to queen-raising is painted a light slate color. This is to facilitate the work —no guessing as to what is inside a "super" of that color, and no wondering where a "stock chamber" was put, if it was set on some colony for stocking with bees or honey.

The nucleus boxes cost 18 cents per pair, including inner cover; rabbets and tube for entrance 2 cents for each hive; tin covers, 16 cents each; cleats, etc., 3 cents per hive. Felt was scrap I got from a mill, and I cannot tell what it would cost, but probably an equivalent could be bought for not to exceed 5 cents per hive. This makes the total cost of a nucleus hive without feeder 44 cents. Paint and labor is extra. Frames cost 2 cents each. Any one trying such an outfit, and working from my figures, should be sure to use supers 16 inches wide. If supers 16¼ inches wide are used, the slatted partitions will need to be ¼ inch thicker.

OPERATION.

The use of this equipment is simplicity

itself. The "stock" chambers are filled with bees either by running in a natural or forced swarm, or else a chamber is set over or under a full colony until the foundation in the little frames is drawn out and filled with brood and stores. Then they are placed on a stand of their own and given a queen. A light-colored queen of quiet ways is to be desired, as it greatly lessens the chance of taking the queen when making up nuclei. And when the system is thoroughly established it will be found worth while to keep these stock hives headed by queens whose offspring are quiet, good protectors of home, and given to minding their own business.

Two stock chambers will hold a strong colony. In the spring additional chambers are added, and the colony allowed to occupy all the room it will. Bees winter as well in these hives as they do in standard hives. As the chambers are of regulation size, they will take regular honey-boards, etc., so that colonies in them, if not needed for nuclei, can be supered and manipulated the same as any colony.

When a nucleus is wanted, a "stock" hive is opened, two of the little combs of brood, stores, and bees are taken and put into a nucleus hive, together with a sugar-feeder, the covers put on, entrance plugged with a leaf, and the hive set where it is to stay. A cell or a virgin queen is given later. The vacancy left in the stock hive is filled with frames of comb or foundation. Nearly a whole stock colony may be used thus, leaving only two combs of brood and bees with the queen. In such a case, the stock hive is reduced to one chamber, and the entrance contracted. The field bees which return will give it a good start in rebuilding.

If a nucleus gets a little weak, one of its combs is exchanged for one of brood and bees from the stock hive; or if, perchance, one gets too populous, a comb with adhering bees is taken from it and exchanged for a comb of stores from the stock hive or for a dry comb. In this shifting of combs, it is only necessary to have a care what is used, and, when a virgin is in the nucleus, to observe the necessary precautions, whether standard frame or baby nuclei are used. In making any nuclei some pains must be used to get a fair balance of brood and bees, and this is easier with a lot of small combs to select from than with a few large ones.

Two combs of brood and bees are all that are used in a nucleus, although occasionally a third comb may be put in, but not often, and never more than that. The little hives will hold five frames; but two or three and the feeder are the limit of what are used. The occupied combs are next to the entrance, the feeder behind them and the vacant space behind that. Thus arranged, the little colonies will take care of themselves for one to two weeks at a time and not offer to swarm out. Fill the hive full of combs, even if one or more of them are empty, and swarming out may become a nuisance. I do not know why. Recently a man in Texas confirmed this.

It will be noticed that the brood is placed next to the entrance, and the vacant space is at the back. This is the opposite of the principle for prevention of swarming as laid down by Langstroth, and later emphasized by Simmins, that the vacant space should be between the brood and the entrance. But with these nuclei we are not dealing with a normal swarming impulse, but with something having to do with the bees' ability to protect their entrance, and at the same time have freedom from any sense of crowding. Be the "reasons" or causes what they may, thus arranged they "stay put," while differently they may not.

So long as these little colonies have room and food, they work on as normally and seemingly as cheerfully as a full-sized colony, even to the extent of raising a good queen now and then—not that they are ordinarily permitted to do such a thing, but once in a while one is overlooked after being dequeened, and then they raise a queen. I have seen as fine a queen raised by a couple of hundred bees in one of these little nuclei as was ever raised by a full colony. Of course, the conditions as to nurses, food supply, temperature, etc., were all just right. The temperature in hives made as described is easily controlled by a very small number of bees; they readily protect the half-inch entrance, and the sugar stores attract no robbers, except the ants. And ants, by the way, are sometimes a nuisance when sugar or candy food is used; but setting the nucleus on a piece of tarred paper a little larger than the hive usually prevents their attack. If once started they may continue despite the application of the paper, and then I have found it necessary to lift the combs and bees into a fresh hive, giving a fresh feeder; and with a brush and any of the creosote compounds, draw a line on the paper around the hive. That gets rid of the ants in the hive, and those outside seldom set up a new line of march across the creosoted strip. Where hives are on stands, treating the legs with the creosote compound will usually suffice, provided the ants are gotten out of the hives first.

Two minor items are worth mentioning, as they add to the general convenience of the operator. The floor of the inner box is painted with enamel white paint, for two reasons: First, if it gets sticky it is easy to wipe or rinse clean; second, if the young queen is timid, and runs from the combs to the floor, she is easily seen. When holding any nuclei very late into the fall for mating choice queens to selected drones, the nuclei are made quite strong, as baby nuclei go, by shaking in young bees and then a piece of wool felt is laid on top of the frames and under the regular inner cover of wood—seemingly small matters these, but some small things save many large troubles and losses.

Toward the end of the season, when the number of nuclei needed is diminishing, the surplus ones are united with any stock hive by the simple process of putting on to the latter an empty stock chamber and hanging the combs and bees from the nuclei into it, observing only the common precautions used in uniting bees. As such wholesale uniting is done when colonies are contracting, the bees will leave the upper chambers soon after the last of the brood emerges, and then all chambers not needed are removed and the colony is supplied with stores if necessary. Thereafter it is treated and wintered as are colonies in standard hives.

Providence, R. I.

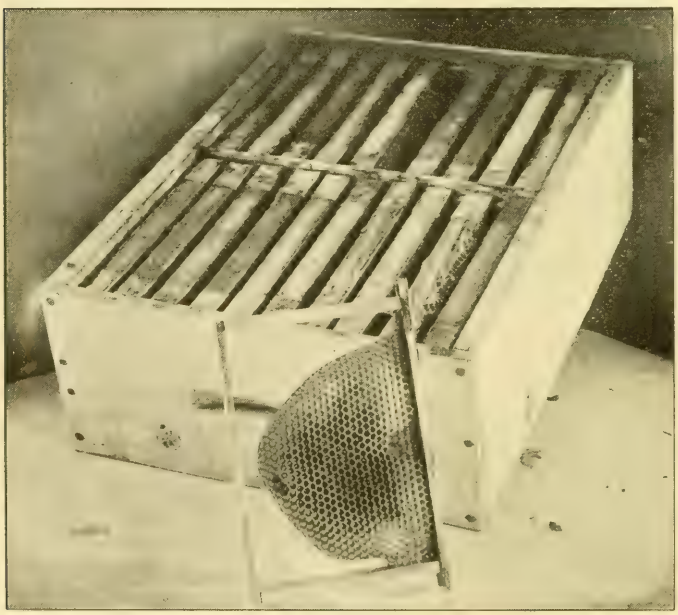
PRACTICAL METHODS OF QUEEN-MATING FOR THE BEEKEEPER

BY E. F. ATWATER

In rearing queens for our own use we have for several years used about 100 nuclei, containing the little frames 5⅝ x 8. By proper use they certainly will give the best of results. For some years we would fit three of these little frames into one standard frame, to get them stocked with brood or honey, or to get combs built.

A few years ago, however, I found that a shallow extracting-super, 6 inches deep, as shown in the cut, with a board across the inside, we made a super or brood-body that would hold twenty of the little frames. The partition is made of two 7-16-inch boards with a folded tin projection at the top.

Since we keep one or more colonies in such hives at all times, we always have a place from which we can draw brood or honey. These prepared supers may be tiered as high as desired. Perhaps the queen would better occupy both parts of each section if the division-board were of slats, bee-spaced apart, as in the Aspinwall hive.

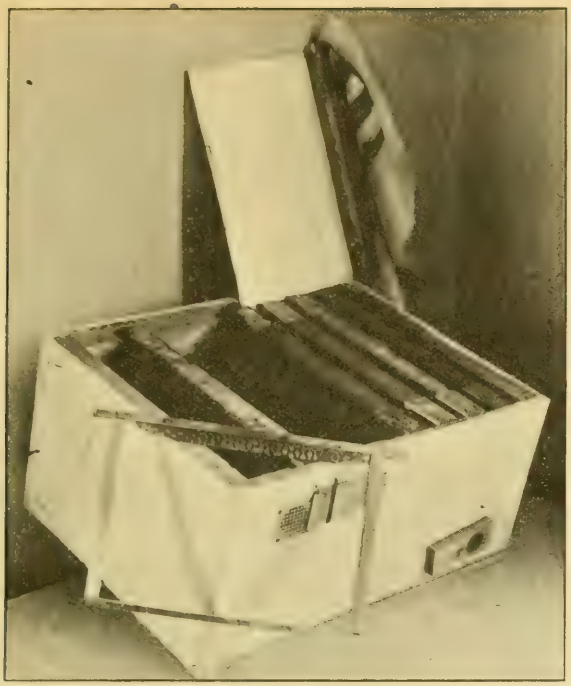


A shallow extracting-super can be converted into a handy brood-body containing twenty little frames.

When we wish to start our nuclei, if we have not enough combs containing some honey reserved from the previous year, we take several of these supers containing twenty of the little combs (even spaced so that each contains 22) and put one on each of several strong colonies.

Under such colonies we put either an Alexander feeder or one of our feeder-bottoms, and about every hour we feed these colonies until the little combs contain sufficient honey. This does not take long.

For our use we find that the little twin nucleus boxes are not the



A smaller body can be constructed on the same principle. Note the tin division-board.

best. So we make other boxes similar to the first, except that each side has space for four frames, and a tin division-board in the middle has canvas tacked to its top-bar for covering each side. A ventilator, as shown, is provided for each compartment. The little button contains a bit of perforated zinc, which may be turned to cover the entrance, when desired. The lids are double, air-spaced, covered with metal, and painted white.

When we start our nuclei we bring bees in swarm-boxes from outyards and put them in a cool place. Into each compartment of the nucleus hive, one of the combs of honey is placed; and next to it, if we have it, an empty comb; or, lacking this, a frame with a narrow starter.

In four to six hours after confining the bees we smoke them in one of the swarm-boxes with tobacco smoke, and then dip a large cupful into each compartment, cover with the quilt, close the entrance with the button, open the ventilator, and put on the lid.

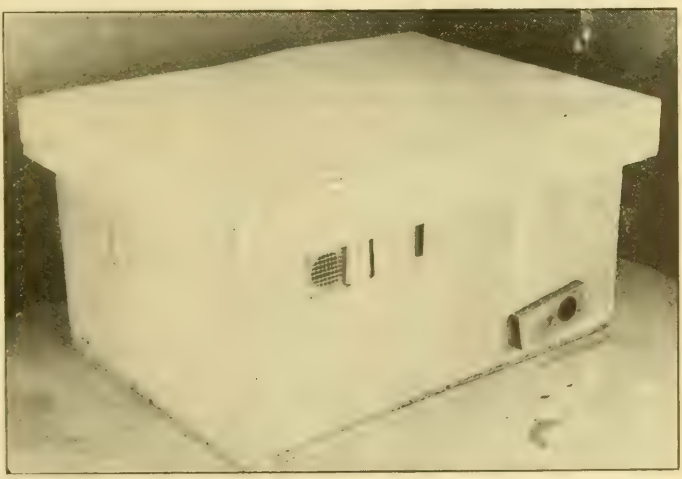
When all are filled, we run a virgin into each compartment, following her with a little tobacco smoke. Virgins of any age are usually accepted.

That evening the little boxes are set in their places. Early next morning the entrances are opened, or else at time of forming they are set in their places in the shade, and the entrances filled with candy, so that they will release themselves at pleasure.

The extensive producer can not watch his nuclei as closely as necessary with the little two-frame compartments usually employed. With ours, however, each containing room for four frames, one has only to add a frame with a starter to the stronger ones, when they will fill it with fine worker comb as soon as their queen commences to lay.

If the queen is not needed at once, another frame with starter will keep them busy for several days more. Then when brood begins to hatch, they may be divided by taking the laying queens and a frame of brood and bees, and putting them in another nucleus hive. The little colony on the old stand will gladly accept another virgin in three days.

Meridian, Idaho.



Each compartment has its screened ventilator.

A PHOTOGRAPHIC INTERVIEW WITH THE BEE-MOTH

BY CHARLES Y. HAKE

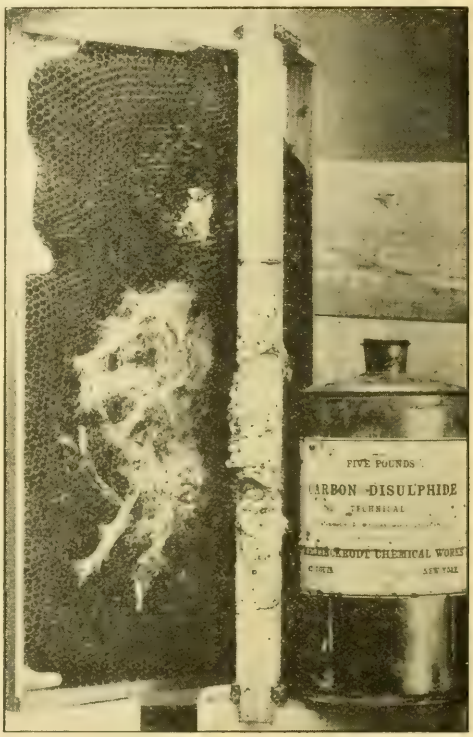
The bee-moth I consider the quickest in action and the most destructive pest of the honeybee. We can be thankful for carbon disulphide, quicker in action than even the bee-moth, and sure death to the enemy.

This case of bee-moth in my apiary does not show any carelessness on my part, but was merely a snare or trap to draw most of the moth to one particular place. I placed five brood-frames with old comb in a box hive at one end of the yard, leaving the entrance wide open for whatever would go in. After leaving it in this condition for eight days I made an examination, and the results are shown in the photographs.

One of the pictures represents a regular brood-frame spun with bee-moth web and cocoons in the center containing live moth larvæ. To the right of the picture is a can of carbon disulphide, the chemical I use to destroy these pests.



Cluster of bee-moth larvæ photographed exact size.

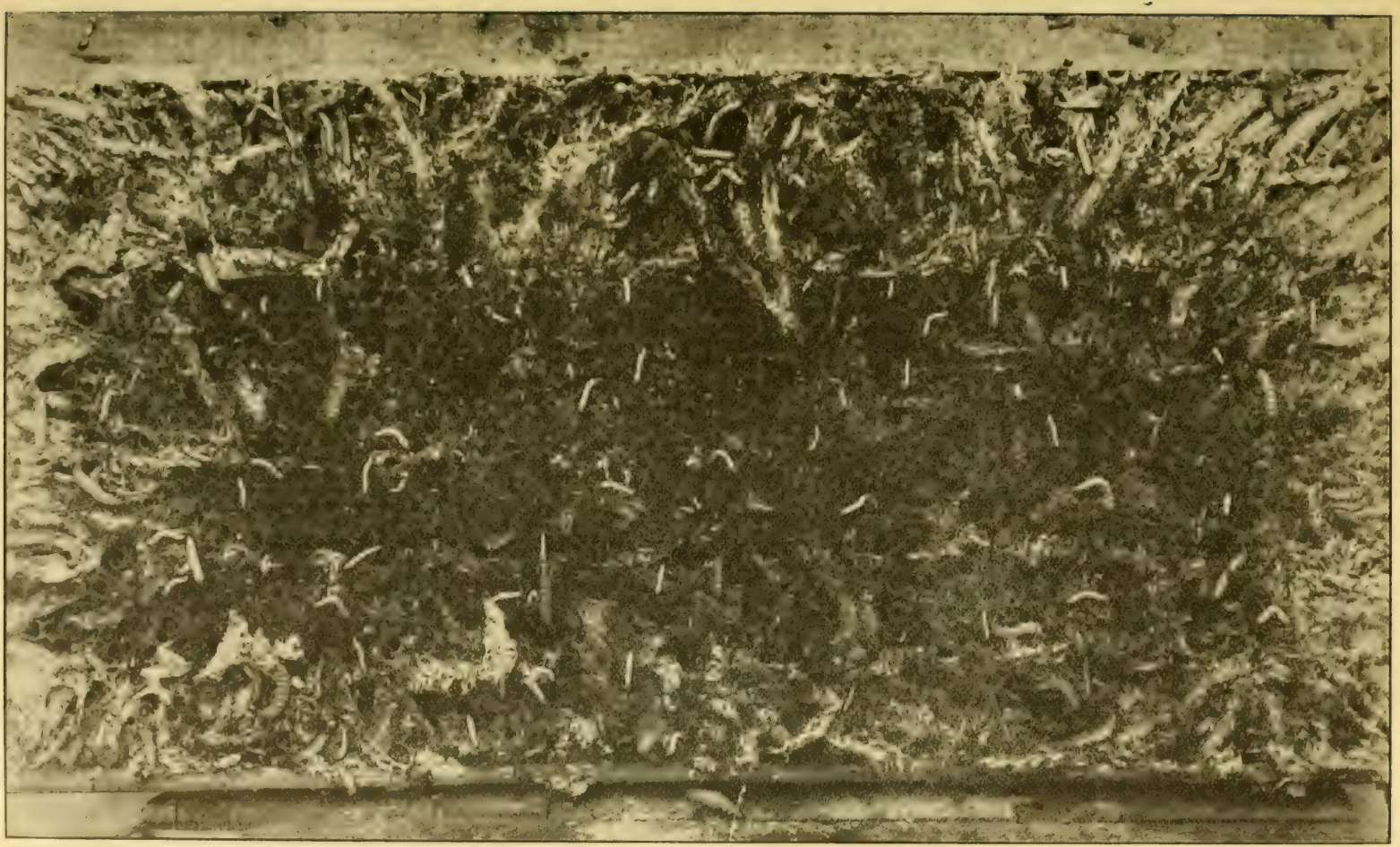


Web and cocoons in the center of a brood-frame.

Another picture represents a cluster of bee-moth larvæ photographed life size. This was fastened between a brood-frame and the end of the hive.

York, Pa.

[Some time ago, a hive of empty comb was left out by mistake at one of our outyards. When we found it the combs were literally covered with moth larvæ. The large illustration shows the result but gives only a faint idea of the number of tiny larvæ, the moth webs, and the channels through the comb.—ED.]



A neglected frame alive with bee-moth larvæ.



Ants are avoided in this Porto Rican apiary by placing the hives on iron rails. Eighteen barrels of honey from 25 colonies that were increased to 150.

A PORTO RICAN APIARY PLAN

BY J. SAMUEL COX

The one of our apiaries illustrated is shaded by banana-trees. In an open field these are very serviceable for shade, since they grow quicker than almost any other plant, and, besides, the shade can be regulated to any one's desire by cutting the leaves. Nearly all the leaves can be cut off without damaging the plant.

Our apiary here is laid out on a plan that has been mentioned somewhere in GLEANINGS. I think it one of the best, not only because it helps the bees and queens to locate their individual colony, but it gives to the apiary a business-like appearance. I agree with the saying, "Fine feathers do not make fine birds," but I believe in the hobby of appearance. I have seen many come to view an apiary who would never go near enough to see the inside of a hive, and these persons have gone away elated, simply from the appearance.

Our hives here are put on iron rails such as are used on the car line. Since the entrances are placed facing each other, there is a passageway between the backs, so that a wheelbarrow can be run without interfering with the entrances. The hives are placed two by two. The closest are eight inches apart, and the next two are three feet away. This apiary was started in August, 1914, with twenty-five colonies. We have increased it to 150, and have taken 18 barrels of honey at the end of December.

Guayama, Porto Rico.

MONTANA AND WYOMING BEEKEEPING

BY WESLEY FOSTER

Bees in Montana did not do so well in 1914 as in 1913. The reason for this I have not learned. The beekeeping area is confined to the narrow irrigated valleys. There is no wide extended irrigated area such as may be found in eastern Colorado and especially northern Colorado.

The precipitation in Montana is slight, as it is in Wyoming. On January 24, about four inches of snow was on the ground, and I was told by one man at Billings that it was the most snow they had had for four years.

Alfalfa and sweet clover are the sources

of the nectar; and, while the seasons must be somewhat shorter than those further south, the days are longer and warmer than one would think for this latitude. It does not get dark until 9:30 or 10 o'clock here in the summer season, I am told, and that makes for a long growing season.

Montana is a rapidly developing state, and is destined to have a bright future. Every one seems to be doing well. Wages are high, and living also. Shaves are 25 cts. Meals at the restaurants and hotels are generally 50 cts. Nothing less than 10-cent cigars are sold, and pennies are not used in this state. I have not seen any except those I carried into Montana in my pocket.

Honey production is only in its infancy in this state, and it is bound to increase. Cattle and sheep are raised by the thousands, and the alfalfa grown finds a ready market for feeding purposes. Alfalfa will for a long time be the principal farm crop. Sugar beets, potatoes, grain, etc., are grown, but alfalfa is king. The river bottoms show that sweet clover is taking them with gratifying speed.

I mentioned that alfalfa and sweet clover furnish the surplus in Montana. Since writing this I have learned that alsike and white clover also furnish considerable honey in some of the valleys. While in Bozeman, Prof. R. A. Cooley, State Entomologist, gave me an opportunity to sample some of his comb honey which had a very pronounced flavor of alsike. Prof. Cooley is a beekeeper, and has a son he intends to train for a beeman.



Dr. Kopenhafer, president of the Montana Beekeepers' Association.

BEEKEEPING IN WYOMING.

Four main districts in Wyoming produce honey. Since the development has not as yet been carried very far, the total honey-producing possibilities can hardly be estimated. Most beekeepers are probably to be found under the Shoshone project in northwestern Wyoming in the lower Big Horn Basin. Ralston and Powell are the centers. Several cars of honey are now shipped from this district. The other important district is probably around Lauder in southern and central Wyoming. Several cars of extracted honey are produced there annually. The district in which Wheatland is the center has been a honey-producing district for some time, but does not produce as white a quality of honey as formerly. One of the disadvantages of this country aroundWheatland is a wind which blows all the time, ac-



Street scene in Worland, Wyoming, one of the towns in the Big Horn Basin.



Mr. Pratt's apiary, Wethersfield, Ct., where the Connecticut Beekeepers' Association met in 1914. Photographed by A. E. Crandall.

cording to some I have talked with. This is exaggerated, but a windy country is one that should be avoided by the beekeeper if possible.

All the districts of Wyoming have more trouble in wintering than the milder climate of Colorado. If the snow falls in November in the Big Horn Basin it does not go off until spring. There are no warm chinook winds. There is but little snowfall, however, and the annual precipitation is below eight inches on the average.

The most successful beemen give their bees protection or cellar them. The loss in and around Lauder often runs as high as fifty per cent on outdoor-wintered colonies.

There are some chinook winds that take off the snow in a few hours in the lower Big Horn Basin; and I understand the winters are not so severe as they are further south. The altitude of the basin is between 3500 and 4500 feet.

Boulder, Colo.

THE VALUE OF FAIRS

BY A. E. CRANDALL

I wonder how many of the beekeepers who live near cities or towns where fairs are held take advantage of the opportunity to show their product. In this way they can get in touch with the thousands of people who annually gather at these places, and who go there to see what new things are being brought out, to talk with old friends, make new ones, and to have a good time in general. The Connecticut Beekeepers' Association is doing excellent work along this line, and many are the remarks of praise for the large bee and honey exhibit which is annually placed at the "Charter Oak Fair" in Hartford.

The fair opens on Labor Day, and affords workmen an opportunity to visit the grounds and see what is going on in the agricultural line as well as in the industrial. I understand that, on the opening day, 70,000 people usually pass through the gate. Doesn't that seem like a fine chance to put bees and honey before the public?

Another thing, the fairs are educating people to realize the value of honey in making cakes, cookies, muffins, and in canning fruit. The culinary department at the Hartford fair provides for an exhibit of this kind, and the following prizes awarded will give some idea of what can be done along this line.

	PREMIUMS		
Class	1	2	3
18 Honey muffins	$4.00	$2.00	$1.00
19 Cookies and gingersnaps	4.00	2.00	1.00
20 Cake	4.00	2.00	1.00
21 Canned pickles	4.00	2.00	1.00
22 Canned fruit	4.00	2.00	1.00

Honey to be used in preparation of above, and recipe to be attached.

A good many times one can find a storekeeper who will allow an exhibit to be placed in his window. If it is done during the summer or fall months when a frame or two of bees can be shown with a printed card such as "Find the Queen," it would serve as a means of attracting attention, and get people to thinking of honey. Otherwise they would hardly give it a passing thought. A great many regard honey as a luxury, and will use it only sparingly or in case of colds. I find a good many who use honey and lemon juice for colds, and seem to think it an unfailing remedy.



Bushels of grapes grow near the hives.

One of the illustrations shows our two children who have been sampling our favorite grape, the Worden. This reminds me that I have never seen honeybees on the blossoms of the grape, but have seen plenty of bumblebees on them. Of course the bees never puncture our grapes, and we have bushels of them growing near the hives.

Berlin, Ct.

INDIANA NOTES ON SPRAYING

BY S. H. BURTON

Dr. Miller says, on page 261, that, no matter how intelligent a fruit-grower is, he will spray before bloom is gone if he is selfish enough, unless the law prevents him. He also quotes the fruit man as saying that he can't get through spraying in time unless he begins before all blossoms are gone; that to wait till all bloom is over there is danger that some of the oldest fruit will be wormy, and that, if he sprays when two-thirds of the bloom has fallen, and kill all yet in bloom, there will still be more fruit than the trees can mature. "Me for the early spraying." Now, what reply have you?

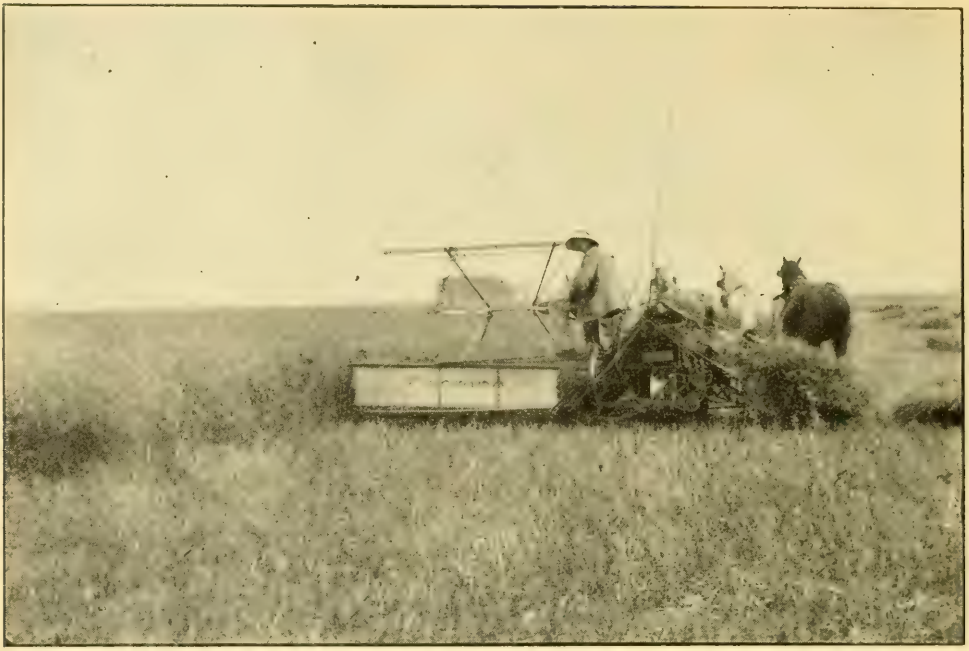


The second Crandall generation is as interested in bees as the first.

Well, the doctor seems to put us fruit-growers all in the same class; but I for one plead "not guilty" to the above charge.

A fruit-grower who has given the matter careful and scientific study does not proceed with such feverish haste. A study of the life history of the codling moth reveals the fact that the eggs from which the larvæ develop, that cause the wormy apple, are laid on the leaves and twigs near the young fruit, and not in the blossom end of the apple, as supposed by a great many fruit-growers. Upon emerging they commence to feed at once upon the young leaves, and gradually make their way to the fruit. If arsenate of lead is applied just after the leaf-buds burst, but before the blossom-buds open, it will control 95 per cent of the codling-moth trouble, because the young worm gets its dose on the poisoned leaf before reaching the apple.

Too much emphasis has been laid on the after-blossom spray, and not enough on the importance of getting the worm before the



Cutting sweet clover with a Linder preparatory to thrashing.

apple is born. I have sprayed apples two weeks after the petals had fallen that were given the cluster-bud spray, and no difference was noted in the percentage of wormy fruit from trees that were sprayed when two-thirds of the petals had fallen. If an orchardist can afford to spray and kill one-third of the bloom, and then have more fruit left than the tree can mature, why all this haste in applying this spray? His statement doesn't bear weight. It would be just as well to let the worms have this extra one-third which will drop off, avoid killing the bees, and save all this ripping around, trying to get the calyx cup full of poison before it closes. The fruit-grower should learn to "make haste slowly," and give more thought to just why certain operations are necessary instead of following blindly some set rule. In my opinion the cluster-bud spray, or the spray just before the blossoms burst, is worth far more in the control of codling moth and scab than any subsequent spray that can be applied.

Washington, Ind.

TWELVE HUNDRED ACRES OF SWEET CLOVER

BY K. E. HAWKINS

Over 1200 acres of sweet clover within a few miles along one road is the way Illinois farmers are responding to the work of the university and beekeepers here, who are spreading the good news around as to the value of sweet clover. This field, for it is nearly all in one field, is owned by W. P. Graham, Rochelle, Illinois; and during the past season county agricultural advisers from all over the state have organized auto trips to Rochelle to allow the farmers of Illinois to see what Graham is doing with sweet clover.

Here yields of as high as ten bushels of seed to the acre have been known. Here the clover pastures three head of cattle to the acre instead of the usual "head to the acre" of the Illinois farmer. Used for pasture, raised for seed, cut for silage, and planted to tone up the soil, clover has come into its own in this portion of the Prairie State.

Together with dozens of other farmers from this county I went to Rochelle this summer with our county soil adviser just to see these 1200 acres of clover to make sure it was a reality. A few years ago the av-



Cattle, three head to the acre, grazing on sweet clover.

erage farmer in Illinois laughed at alfalfa, not to speak of sweet clover. To-day there are hundreds of acres planted.

Mr. Graham's primary object in using the sweet clover is that it is a still better renovator of the soil than alfalfa. Beekeepers, take notice of that. When asked if he used it for grazing or seed primarily, Mr. Graham answered in the negative, saying, "Neither. I prefer it for fertilizing." Comparative tests made there in Rochelle have shown that the sweet clover, at least on that soil, renovates better, and makes the soil give greater yields of corn and potatoes following it than alfalfa.

Often it is not necessary to inoculate the soil. Where it is necessary, one may go to the roadside where sweet clover is growing, gather some of the soil from about the roots, and, after moistening the seed with a thin solution of commercial glue, sprinkle a few handfuls of the soil to the peck of seed and mix it well. The seed must be spread out carefully to allow thorough drying, else it will spoil.

When asked if he had ever had any trouble getting cattle to eat the clover, or any bad after-effects, he said he had not. The first year it may be grazed successfully, and the second, cut for the seed. It is best planted in the fall, say August. It should get enough growth in the fall rains to be six inches high for winter. Straw spread lightly over the fields aids the wintering. Three head to the acre of cattle, as the picture shows, have been pastured there this year.

It is cut while young and tender, in the fall of the first year, and put into silos just as young and tender corn, and fed through the cold winter months just as ordinary silage. Mr. Graham says it makes very good silage. Limestone on acid soils is a necessity to get it growing, for, like alfalfa, sweet clover will not grow on a "sour" soil. The richer the land the better growth it makes, but it is unexcelled as a renovator. The picture shows the ordinary oat-binder being used to cut the clover, which is handled in much the same way as ordinary mammoth clover for hulling.

Mr. Graham has never kept any bees, for there are so many in the neighborhood that he believes there are enough to insure all the necessary fertilization of the blossoms. Not being a beekeeper, he had never noticed particularly that the bees worked on it, and this shows that necessity often makes one notice that which he may never have known existed. However, the yields of honey which are secured by some of the beekeepers around there point to the fact that the bees visit the blossoms very much, and are more of a necessity than Mr. Graham had thought. It is conjectured that the wind fertilizes to a great extent where so many acres stand side by side, as in the case of corn, while solitary plants along the roadside would not bear seed unless visited by bees continually.

Plainfield, Ill.

OFF YEARS IN SWEET-CLOVER NECTAR

BY VIRGIL WEAVER

Sweet clover is a great honey-plant under favorable conditions. It will yield as fast as almost any of the clovers, but it will not provide nectar every year. I was led to believe that this was the case, so in 1913 I shipped 131 colonies of bees to Pendleton County on the first of July. Pendleton County beekeepers told me that the last of June and the first half of July is the best time for white sweet clover. The result was that they never stored a pound of honey, and had to be fed through August and September. Out of the 131 colonies, 28 of them wintered.

As the 1913 drouth killed all prospects for white clover for 1914 in Madison County (where I formerly lived) I shipped all my bees in Pendleton County for 1914. Here is the result. Until May the rain was plentiful, May 8 giving one inch. By May 15 the yellow was in full bloom, and by June 1 the bloom was gone and not a pound of honey had been gathered. From June 1 to 6 we had 2¼ inches of rain on the eastern side of the county, and from 2¼ to 7 inches on the west side of the county—a regular soaker. White sweet clover was in full bloom by June 15.

The record of the colony on scales will tell the result better than I can. Here is what it says:

May 20, weight 58½ lbs.; July 10, 63¾ lbs. This was a No. 1 colony. I got through the season without any feeding. Buckberry did the work and not sweet clover. Buckberry gave us a slow honey-flow from Aug. 1 to September 15, ample for the need of the bees.

Sweet clover is one of the very best forage plants, and provides wonderful pasturage and excellent hay. Its value as a soil renovator is unequaled. This county of Pendleton fifteen years ago was a barren waste. It had been "tobaccoed" to death. By some means this plant became introduced, and for long it was fought as a weed. Finally the farmers began to realize its value, and, to make a long story short, land which was worth from five to ten dollars per acre at that time is now realizing from forty to sixty dollars per acre. There is another comparison. At that time the farmers were abandoning their farms and seeking employment in the cities. They did not have sufficient means to buy suitable clothing for themselves. At present there is on deposit in the various banks of Pendleton County money aggregating over $100 per capita, most of which belongs to the farmers.

But don't get it into your head that sweet clover does not have to have moisture to make it yield honey. I believe that about one year in three it will yield a good lot of honey. This will help out white clover here, as that yields about one year in three also. So the two together make a good team.

Alsike clover is the surest yielder of honey of all the clovers. I saw this demonstrated this year. Fifty colonies of bees in reach of fifty acres of alsike stored thirty sections per colony, while those in reach of a larger area of sweet clover stored nothing. It takes two years to work the combination on honey production, one year to grow the plants, one year to grow the seed. We are hoping for something better this year; so, come down and see us.

Falmouth, Ky.

SOME SEED PROBLEMS OF SWEET CLOVER.

[Can sweet clover be gotten rid of after a crop has been grown, and small grains sown the next year? This is a question which has worried farmers wherever the plant is being introduced. One reported that he had planted wheat the spring following a crop of sweet clover in the same field, and that the clover had choked out the wheat. The experience is unusual, to say the least.

The best crop to put in immediately following sweet clover is corn. The effect of the sweet clover will be noticed only in increased growth of the corn, sometimes as much as twenty bushels heavier than in land not previously planted in corn. Sometimes corn is grown two years in succession, and then followed by wheat. No trouble with smothering is ever reported. The farmer need fear no difficulty in getting rid of sweet clover after he has once sown it. The fact that the plant grows abundantly along the roadsides, and seldom appears in cultivated fields, is evidence that it can be easily destroyed if necessary.

Another point on which there is question is the amount of sweet-clover seed to be mixed with oats in seeding them together. Some sow ten pounds to the acre, others as much as twenty. A good average is fifteen. Care must be taken in mixing the seed in the drill, and in not having so much in at once that the clover will work down under the oats in the drill-box. This would mean uneven proportions in the field. With care the seeding can be made even. Hulled sweet clover is more satisfactory in such a mixture, since some of the unhulled is not likely to come up the first year.—ED.]

THE ALEXANDER METHOD IN A CLOVER LOCATION; SOME FURTHER PARTICULARS AND A REPLY TO DR. MILLER

BY IONA FOWLS

In Stray Straws, April 1, 1915, Dr. C. C. Miller seems surprised at my statement that the swarming tendency would very rapidly develop into a mania if we put the queenless colony right on top with nothing but the honey-board between; and he thinks Mr. Alexander and himself would have discovered it if that were true. He then asks, "What can make the difference?" Well, the difference is that Alexander's queenless colony and our queenless colony are under quite different conditions. He took bees that had not begun swarming. Ours may be at quite an advanced stage.

Mr. Alexander's plan, according to his own words, was to be put in operation "when your colonies are nearly full enough to swarm naturally." And later he says, "I find that nearly all who have made a failure of the method have taken colonies that had already made some preparation for swarming by having eggs or larvæ in their queen-cells." Now, our plan is applied at the very stage that he considers liable to cause failure under his method. In fact, we even take bees that have *capped queen-cells* present; and, please notice, we leave all the cells except the capped ones. Moreover, his queenless colony is left but five days, while ours is left seven or eight. Therefore his queen-cells would have larvæ no more than one or two days old, while ours might be ready to hatch. And yet I notice that, in dealing with these bees that have not even begun raising cells, Mr. Alexander says, "Leave them in this way five days, then . . destroy any larvæ you may find in the queen-cells . . . . for they frequently start the rearing of queens above the excluder. If so, you had better separate them at once."

Why separate them "at once"? Because he knew that some of the cell-builders, if placed so close to the lower hive that only a honey-board intervened, would very likely pass through into the lower hive and also start cells there, and thus the swarming idea would become firmly fixed. Well, if he recognized such a danger when cells were but five days old, how much safety would he have felt with cells at all stages from one to sixteen days old?

Our idea is to get those cell-builders further away from the queen, so that the bees of the lower story will not begin raising cells; for our experience has been that, with such advanced cells above, the lower colony will very soon catch the swarming fever unless the two stories are separated by inserting supers; and the further the brood is isolated from the queen, the more queenless the bees of the upper story seem to feel, and the less likely is it that the presence of cells above will cause swarming to be started below. Consequently we put two or three supers between; and we find, so far as isolation is concerned, it has about the same effect as moving the upper story to a new stand. However, it is vastly better, for we not only keep the bees at work, but also save the larvæ.

Evidently, in the March 15th number I did not make myself very clear, for I had no idea of criticising the Alexander method. If one desires increase, and has his bees all in one apiary, as Alexander had, it would probably be difficult to find a better plan than his. But for the sake of those who have several outyards, and also wish to keep down the increase, I thought I would like to clear up any points that might arise concerning a plan that has proved so helpful for us.

Father could not remember where he first obtained the idea of the plan. Imagine my surprise this morning when I finally located the suggestion in the first paragraph of an article entitled, "Do Queen-cells above a Comb-honey Super Bring on Swarming?" by Dr. C. C. Miller, Aug. 15, 1911; and to think that Dr. Miller is to blame for it! Well, never mind. The plan works out beautifully, and we are just as much obliged for it as though he had written it for our special benefit.

Oberlin, Ohio.

NEW BRUNSWICK CONVENTION

BY H. B. DUROST

A meeting of the directors of the New Brunswick Beekeepers' Association at Fredericton on March 9 was marked by a good attendance, interest, and enthusiasm. A number of most important subjects, bearing directly on the interests of those keeping bees in the province, were dealt with in a businesslike manner.

The subject of a law to prevent the introduction and spread of contagious bee diseases was thoroughly discussed. All were agreed that the time was ripe for the beekeepers of the province to ask for such a law; and it was finally decided that the association petition the legislature, now in session, to take action in the matter. In view of the fact that the province is practically free from the dread disease "foul brood," it was felt that a law to prevent its introduction would best suit our needs.

It was finally agreed that a law be asked for, modeled after that of Ontario, with a clause such as is found in the British Columbia act to give the Minister of Agriculture power to order bees coming into the province on their comb to be placed in quarantine for a fixed period. It was stated that the disease probably did exist in the province at a few isolated points. In order to prevent its spread, and to find and stamp it out if it did exist, it was decided that a clause should be inserted in the law to prohibit transportation companies from carrying bees on their combs from point to point in the province, except such as bore an inspector's certificate of recent inspection.

It has been recognized that one of the greatest drawbacks to an increased interest in beekeeping in this province was a lack of easy access to a source of good beekeepers' supplies. Last season the association handled supplies at cost for its members through its secretary. Objection to this was raised, so a new plan was adopted. This season the county secretaries or directors have been authorized to collect and forward to the president all orders for supplies from all members in their respective counties. The president will combine these orders and forward them to the supply concern offering greatest inducements. The goods will be shipped direct to the parties ordering.

The matters of exhibition prize lists, markets, etc., were briefly discussed, and the meeting adjourned.

Woodstock, N. B.

NOTES FROM GERMANY

BY J. A. HEBERLE, B.S.

Dr. U. Kramer, a well-known author on apiculture, and one of the eminent beekeepers of Europe, died at the age of 70, on Aug. 19, at his home in Zurich. Since 1881 he has been one of the directors, and for nearly twenty years the president, of the Association of Swiss Bee-friends. Under his management, with able assistance, the association has prospered, and is probably the most perfect organization beekeepers have in any land. The association has a very ably edited bee-journal, an insurance against damages by foul brood, and a good working system of controlling the honey of such members as desire to avail themselves of it. This controlled honey is sold as "checked," the purchaser having the best assurance that he gets pure honey. Queen-rearing, select breeding to improve the native race (the black German bee), mating stations, etc., are largely due to the initiative and fostering care of Dr. U. Kramer. He succeeded in uniting and inspiring under his supervision a large number of well-trained breeders who have attracted the attention and approval of the German-speaking beekeepers of Europe. The association of German-speaking beekeepers of Switzerland is a living monument to Dr. Kramer, its former president.

POISONOUS HONEY.

The honey gathered by the bumblebee should not be eaten, because these insects gather nectar from the poisonous *Aconitum*. Xenophon relates that his soldiers were poisoned by eating honey near Trapezund. According to investigations it is believed that the *Rhododendron ponticum* and the *Rh. flavum*, which are diligently visited by the honeybee, furnished the honey for Xenophon's soldiers. In the deserts of Uruguay the French botanist Saint Hilaire had a rather dangerous experience. On one of his excursions he found a wasp-nest on a low bush. He considered it an excellent addition to his breakfast. Very soon he and his two attendants noticed the poisonous effects. First he felt a severe pain in the stomach; then illusions troubled him. Tears ran from his eyes, succeeded by laughing-spells almost to exhaustion. Finally his sight failed him, and he thought his end was near. Two companions who came upon them toward evening succeeded in bringing him to consciousness by infusing with warm water. The next day an Indian who ate honey from a nest of the same variety of wasp, the *Lacheguana*, suffered no inconvenience at all. Probably these wasps had gathered only from non-poisonous plants.—*Kosmos*, Stuttgart.

HEATHER—ERICA VULGARIS.

This plant is in northern Germany quite important for the beekeepers. Extensive

areas are covered almost exclusively with this plant, which opens its blossoms in the first part of August. Beekeepers migrate to the heath lands from considerable distances. Entire trains loaded only with bees to be carried to these late-blooming pastures may be seen. The "Heidimkers" have from the common German black bee bred a variety called the heath-bee that differs from the original especially in its fertility and swarm impulse. In this respect it equals the Carniolan bee. Beekeepers who move to the heath want to increase as much as possible by natural swarming, and to have a high number of skeps when moving to the heath. About the middle of September the flow from the heath stops. Those skeps that the beekeeper does not want to winter are "drummed off," and the "swarms," weighing from 4 to 6 lbs., are sold from 75 cts. to $1.10. For 12½ cts. a swarm up to 11 lbs. can be sent by mail to any part in Germany. Such swarms are put on combs, and fed sugar syrup for winter stores. The queens of such swarms are often exchanged, either in the fall or next spring. The honey from the heather is not considered first-class; and as soon as it is capped it is so viscous that it cannot be extracted except by using a new device by which, after the comb is uncapped, something like a blunt nail is forced into each cell. Most of the heath honey is either sold as comb or chunk honey, or strained honey that has been melted with a gentle heat. It is only in the last few years that the modern hive has begun to gain favor with the Heidimker.

Besides this *Erica vulgaris*, there grows especially abundant in Karnten and Carniola the *Erica carnea* on the lower mountain sides. It blooms quite early in spring, when snow may be within a few feet. This very beautiful flower, which covers extensive areas like a crimson carpet, furnishes pollen and honey. The honey is said to be of very fine quality, but is used by the bees to build up.

I am surprised that I never see any thing mentioned about the heaths of America. Are there none in the northern or northeastern parts? The *Erica vulgaris* grows in Germany on peat and sandy ground. The heath honey is by many considered a poor winter food, but excellent in spring to breed up rapidly.

Kempten, Bavaria, Germany.

DR. ULRICH KRAMER

BY ERNEST TSCHUDIN

The Swiss beekeepers have suffered a severe loss by the death of Dr. U. Kramer, which occurred in Zurich on the 19th of August, last year, a few days before his 70th birthday. His name is known not only in every Swiss beekeeper's home, but also far abroad, on account of his practical and scientific writings on the honeybee. He had been a lover of nature since his earliest days, and especially the bee captured his interest. While still in the state's service as teacher at the public schools at Zurich he unselfishly sacrificed most of his holidays to the cause of beekeeping, giving during this time more than 200 lectures on beekeeping, and dozens of instruction courses of several days each, all of which practically meant unpaid work in those days. Since 1895, when pensioned as teacher, he devoted all his time and strength to the promotion of beekeeping in Switzerland.

Kramer was founder of the Zurich Beekeepers' Association, 1887, and three years later he advocated the uniting of the different beekeepers' societies into a national organization, which now counts about 9500 members, belonging to 116 individual societies. Kramer had been its president for nearly twenty years. In the same year, 1884, he initiated the observation stations for studying weather and yield conditions in different regions of the country, reports to be sent in monthly. For twenty-two years Kramer acted as chief of this work, and published highly interesting reports with colored tables, which threw new light on the matter.

In the last fifteen years this institution has been also adopted in Austria and a few German states, as well as the mating-station system, another creation of Kramer. He established the first station of this kind on a small island in the lake of Zurich.

With the advance of beekeeping in the last twenty years the importation of foreign stock, especially Italian and Carniolan, had assumed great proportions. The results, however, were not always satisfactory, and Kramer, basing his statements on careful and painstaking observations, was one of the first to declare that the native "brown" bee was the race best adapted to the pecu-



DR. H. C. ULRICH KRAMER

liar climatic and other conditions of the country. At the same time he started the "pure-breeding courses," which took place yearly, and were usually attended by about a hundred beekeepers. One of his best-known writings deals with this matter (*Die Rassenzucht*). The facts prove that Kramer's idea was correct. The select Swiss bee of to-day represents an excellent strain.

But Kramer was also gifted with a practical turn of mind. When, in view of the increased production, many a beekeeper was afraid that the product would go down to an unsatisfactory price, Kramer showed the way—the honey control (introduced in 1897, and directed by himself for several years) in connection with an active propaganda based on the controlled pure product. The public now usually asks for controlled honey, the purity and quality of which is warranted by the Beekeepers' Union.

As a regular contributor to the *Swiss Beekeepers' Review,* and for many years director of the bee department in the *Agricultural Journal,* and by publishing several works, partly in connection with other authorities, he had sown many a grain of wisdom that brought forth fruit. No wonder that, on various occasions, he was honored with diplomas and other distinctions, and in 1908 even a doctorate (*honoris causa*) was conferred upon him by the University of Bern in consideration of his scientific and practical merits in apiculture—the first similar honor since the days of Dzierzon.

These few notes will suffice to show the great debt of gratitude the Swiss beekeepers owe to Dr. Kramer. It seems unnecessary to say that he was a good man, a straight character, with an ideal disposition, and in his life he fully realized one of his expressions: "A right man must leave a good trace of his activity in this world."

Basel, Switzerland.

WHAT HAPPENED TO THE QUEEN; SOME DIARY NOTES

BY J. P. BRUMFIELD

All queens were clipped during the fruit bloom of 1913.

March 13, 1914: "All queens clipped in the latter part of January started up a little brood, but they have been pretty steady until now."

March 15, 1914: "I gave some partly filled combs of honey to some light ones and noticed some with a patch of sealed brood and some with recent eggs and larvæ. All the colonies in the yard have some brood."

April 15, 1914: "There is a colony that has no brood. I am not certain whether they have a queen. I did not find her when clipping (fruit bloom)."

April 16, 1914: "I found an unclipped queen in the colony, but she does not lay. I put a frame of eggs and larvæ in, thinking it would make her show her hand, but did not clip her."

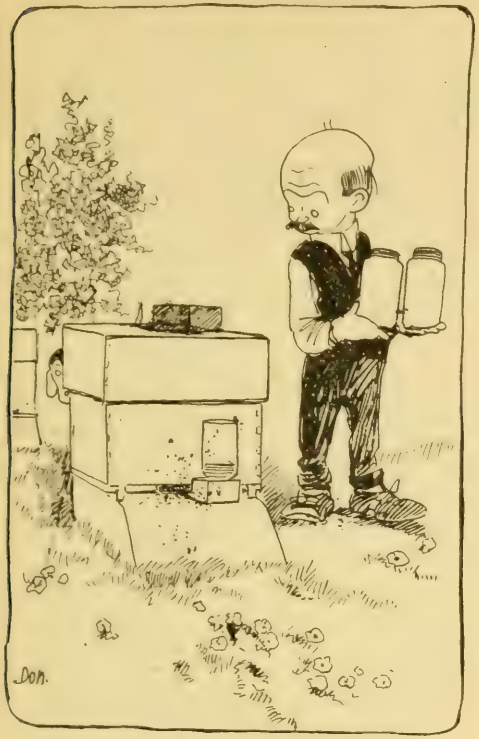
April 22, 1914: "The queen is laying. There are drones flying in the yard."

April 29, 1914: "Her brood turned out to be drone. I united the colony by setting it on top of another hive."

My explanation is that about March 15 the colony lost their queen, probably by balling on account of an early disturbance. I have had this happen so often that I have resolved never to disturb a colony again before fruit bloom. The bees then raised a queen, and, on account of unfavorable conditions or lack of drones, she did not get fertile at so early a date.

Galena, Kan.

Heads of Grain from Different Fields



The Backlot Buzzer

You can teach a calf to drink from a bucket, but after a bee once gets educated to it, it sticks to the nursing bottle.

Yellow Wax from Bitterweed

The article by P. E. Waugh, p. 939, Dec. 1, on bees secreting yellow wax, and F. W. L. Sladen's comments upon it, brings to mind some observations in my own experience in Texas several years ago.

There is a plant, very common all over the northeastern part of the state, known locally as dog-fennel, or bitterweed. Some seasons it secretes a considerable quantity of nectar which, however, is of such a very strong and bitter flavor that bees do not pay much attention to it if any other source is available. This plant thrives best on light sandy soils, and is in the prime of bloom during July and August, when the scorching sun and drouths of summer have ended the flow from most other plants.

Strong colonies will often store 40 to 50 lbs. of the rich golden-yellow honey; and comb built at this time is invariably yellow—just a little lighter colored than the ripe honey—and is clear and transparent. I know the color is not caused by pollen grains, for the pollen from dog-fennel is of a dull-red color. The new comb also has a slightly bitter taste, and I have often wondered if the very bitter honey consumed by the bees while secreting this wax could have imparted somewhat of the same flavor to it.

Down on the Texas coast we often got a considerable flow from goldenrod; and when heavy enough for comb-building I have noticed that it was always yellow. I am not sure that the color, in this case, was not caused by pollen, as it is of the same color.

Port Columbia, Wash. J. D. YANCEY.

How to Form Nuclei and Keep the Bees from Returning to the Old Stand.

The only way that I can make increase here and secure a honey crop is by forming two-frame nuclei. As you know, it is necessary to confine these nuclei for three days, else the flying bees will go back to the mother colony. Here is where my trouble comes in confining them. I have no shade for my bees, so I was afraid to close the hive entirely, so I accordingly left a hole half an inch square, over which I placed a piece of wire cloth. There were only two frames of brood and bees in a ten-frame hive-body. They struggled so hard to get out that they died by the handfuls. Then I tried giving them the full entrance, ⅞ inch by the width of the hive, closing this with wire cloth, but it was no better. I sprinkled them with water, but it didn't do any good. There has to be some way to confine them or they could not be confined in cages and shipped as they are.

If you can give me any solution to the problem I shall greatly appreciate it. I have been thinking of putting them down cellar where it is cool and dark. Do you think it would be all right? and in that case how large an opening would you leave at the entrance?

I have been letting these nuclei raise their own queens; but this year I want to raise some queens and give them when I divide. I have never had any experience in queen-rearing; but I think I can do it all right. I want to use a modification of the divided brood-nest. Instead of using two perforated zinc division-boards, dividing the hive into three apartments, my plan is to use only one and divide the hive into two equal apartments and shut the queen in one side for ten days, and at the end of that time remove the cells from the queenless part and transfer the queen to that side, and let them raise cells in the other side, and so on as long as I need queens. What I want to know is, will the bees in the queenless side of the brood-chamber build cells of their own accord on the combs, or shall I have to graft and use artificial cell cups to get them to build? In confining the queen in this way to one side of the hive is it necessary to have perforated zinc over the entrance? If there isn't, will she not go to the entrance and get around the division-board and into the other side of the hive?

Would it be best to give a ripe cell to the above nuclei, or a virgin? and ought it to be given at the time the division is made, or wait till after the bees are liberated and quieted down?

In fumigating combs with sulphur, should it be put under the combs or on top? Will the fumes of the sulphur or carbon bisulphide injure comb honey? It is almost impossible for us to keep comb honey here in hot weather without worms getting into it.

Heiskell, Tenn., March 23. J. R. STEDMAN.

[You will get the best results by making nuclei of sealed and hatching brood. The more brood that is just ready to come out, the better. Also shake into the nucleus box or hive nearly double as many bees as you expect to leave with it, getting as many young bees as possible. It is immaterial whether the nucleus has a queen-cell or a virgin queen, excepting that, where a queen is present, the bees will stay a little better than if queenless; also gains will be more rapid if there is a queen there to lay eggs. When the nucleus is prepared, simply put it on a new stand and close down the entrance, so that only two or three bees can pass through at a time; and as a precaution to get the bees to mark their entrance, throw a handful of weeds or straw loosely over it. Most of the old field bees will return to

the original stand; but if you are careful to shake into the nucleus, as advised, more bees than are needed, and have considerable hatching and sealed brood, you will have a nucleus that will build up rapidly. It is never a good plan to close the entrance of a hive, especially in warm weather.

Under normal conditions, with the honey-flow on and a strong colony, the plan of dividing the hive with a tight-fitting queen-excluder board is a good one for raising a few queens. The bees should start queen-cells of themselves. However, if there is no honey-flow on you will not get good results in any plan of queen-rearing unless you feed. It is not necessary to have perforated zinc for the entrance, as the queen never leaves the hive except in the case of swarming, and will not go outside of the hive to get around the division-board.

Carbon bisulphide is much better for fumigating combs than sulphur fumes. Sulphur will sometimes spoil comb honey, and is not nearly as effective as carbon. To use the latter, stack your supers of comb honey up in your work-shop. See to it that the bottom and the cracks between the supers are as nearly air-tight as possible. This can be done by pasting strips of paper around the cracks. Place an empty super on top of all, and in it an empty saucer or tin lid. Put in this receptacle about a teaspoonful of carbon bisulphide for every ten supers of honey. The gases are heavier than air, and will settle down through the supers. When fumigating with sulphur it must be placed *under* the supers instead of on top, as the gases will rise.—G. H. R.]

Fruit-jar a Successful Feeder

I believe I have a better method of feeding than I have yet heard of, although it is on the pepper-box order. Simply take a Mason jar—pint, quart, or half-gallon, according to the amount to be fed. Next take a lid, one that is of no use for sealing fruit any more. Break out the glass on the inside, and puncture the lid from the inside with a few very small holes and the job is done.

This feeder can be used the year round. I am using one now. The can will make the hole air-tight when I invert it, providing I have done a good job in boring. One can use this system regardless of the hive level. I use a small block of wood to cover the hole when it is not in use. The bees will glue it fast and make it air-tight.

In making this place for the feeder, take an extension bit, and set it so it will bore a hole just large enough for the can lid to come flush with the under side of the cover. I think the center of the cover is best. When this is done you have a feeder that is always at hand, and one that will never wear nor rust out.

Marion, Ind. L. W. MARTIN.

A Cheap Milk-pan for Feeding

When using ten-pound pails for feeding, as J. L. Byer suggests, page 191, why not invert them in a tin pie-plate and set in a super on top of frames with the oilcloth turned back? This will avoid spoiling the pail-covers. All that is necessary is to insert a thin bit of wood or a shingle nail under the outer edge of the pail after it is placed on the hive, and then the bees will do the rest. It will feed just as fast as the feed is taken by the bees and no faster.

I prefer, however, a cheap milk-pan that holds about twelve pounds of syrup. I put a comb-honey or extracting super on the hive after sliding the oilcloth back about half way; set the pan over the open space, and put into it a handful of excelsior. I pour in the warm syrup just before dark, and, as a rule, the pan will be dry in the morning. I remove the cover and fill again if it is necessary. This can be done in one-fourth the time required for pails. Grass can be used for floats.

Union Center, Wis. ELIAS FOX.

Carrying Bees out of the Cellar Early in the Night.

My plan for 25 years has been to carry bees from the cellar in the fore part of the night. During the latter part of the night they will cluster compactly, and in the morning they will slowly unwind this "ball," and gradually begin their cleansing flight until all have been out. When the air is filled with bees, it is one of the grandest sights of the season. I never have that mad exciting rush that I used to have when setting out in any time of daylight. There is practically no drifting, even with hives only a foot apart and entrances wide open or partially closed. So far as setting hives on the former stand is concerned to avoid mixing, there is nothing to it.

Union Center, Wis. ELIAS FOX.

Lead Pipe Dangerous

I notice, page 206, March 1, that E. B. Ault desires to use a lead spiral-worm pipe to convey steam through his honey-tank to prevent granulation or to restore the honey from its granulated state, and the editor asks if it is all right to use the lead pipe. I will state that it is not all right. The acids that are present in the best grades of honey are sufficient to set up a chemical action with the lead that will leave a lead poisoning; and when there are any acids present due to improper curing of the honey, as there are at times in a great amount in some honey, the chemical action is multiplied in proportion to the amount of acid present. I think a good grade of first-class white galvanized pipe a great deal better.

Bartlett, Tex. T. P. ROBINSON.

The Avocado Pear—More About It

The avocado, or "alligator" pear, is a great fruit, or perhaps should be classed as a vegetable, as they are eaten with a little vinegar, pepper, and salt.

At first taste very few people like them; but after tasting a few times one seems to want more and more, and doesn't seem to tire of them as with some fruits. I let them hang on the tree until they are ripe, then lay them away for two or three days, till they begin to get soft but "not too soft;" picked too green they are watery and haven't the rich nutty flavor. The first avocado I ate I sprinkled a little sugar over, and a few drops of vinegar, and soon found them very nutritious. In Havana they retail from 2 to 60 cts. each, according to size and season. In New Orleans I saw large nice ones on the market 10 to 20 cts. each.

Corning, Cal., March 2. HENRY HEAP.

Cement Hives in Florida

Mr. Culbreth, of Tampa, has had bees for years. He had a dozen cement hives made last spring, and transferred to them, hoping to have a good lasting and serviceable hive. Only one of these colonies is alive now. They say the cement hives are too damp for bees, especially in the rainy season. I should hate to handle many of them, even if bees should do well in them.

Palmetto, Fla., Nov. 5. C. H. CLUTE.

Timbers under Water 20 Years

The editor's note, p. 952, Dec. 1, in relation to preservation of wood is correct. I have removed from lead and zinc mines timbers that I knew had been placed there and had been under water 20 years, and they were as sound and green as when put there. The bark and sap looked as though they had been recently cut.

Galena, Kan. J. P. BRUMFIELD.

A. I. Root

OUR HOMES

Editor

Peace on earth, good will to men.—LUKE 2:14.

Charity suffereth long, and is kind . . . . is not easily provoked, thinketh no evil.—I. COR. 13:4, 5.

"BREATHING-SPELLS."

When I am in Medina I am a Congregationalist; when here in Bradentown, Fla., I am a Presbyterian—that is, if the good brethren here will permit me to say so. There is no Congregational church here, and I do not see much difference, although dear Bro. Rood *did* suggest one Sunday that I would "know my catechism" better if I were an "out-and-out" Presbyterian. Well, I have learned to love the Presbyterians dearly. I love that little Sunday-school paper *Forward*, and I love the *Westminster Quarterlies*. Just by accident my eye caught the clipping below from the *Adult Bible Monthly* for April:

BREATHING SPELLS

The United States Government has recently concluded peace treaties with more than a score of nations. Great Britain, France, Italy, Spain, and China are among the number; while Germany, Russia, Japan, Turkey, and Greece are expected to follow soon. The treaties provide that all international disputes shall be referred to a permanent commission for investigation.

The idea is that many difficulties will disappear upon careful examination, or will at least yield to adjustment. The most important arrangement of the new treaties, however, is the provision that in no case shall hostilities begin before the end of one year. If this provision is strictly observed, war will be practically impossible. A year's time to think will be enough in ordinary cases to bring about peaceful adjustments before war can begin.

These treaties have been aptly called "breathing-spell treaties," and they mark a great advance toward the permanent establishment of peace.

The principle is a very valuable one for human conduct. Men are apt to be too quick, both in speech and in action. Hasty speech brings ten thousand troubles into this world. Hasty action reaps a constant harvest of sorrow. The habit of taking time to think saves many a mistake and heartache. Many an act that has caused trouble would never have been committed if the person committing it had but taken a breathing-spell.

When shall we learn that quiet and meditation have much to do with conduct? Prayer, also, is necessary to insure careful action. Think and pray before speaking or acting. A rule such as this would make the world a new place.

Anger is a hasty feeling of the heart. It bursts out into sudden speech or unwise action. The best cure for anger is to be quiet for a time. Wait until the fire burns out. There is an old proverb that runs like this: "If you are angry, stand still. If you are still angry, sit down. If after this you still feel angry, lie down."

The "breathing-spell" will work.

May the Lord be praised for what the above tells. How fervently we ought to thank God continually that we have a Christian President when such a one is needed—yes, *more* than ever before in the history of our republic. As I write, this 6th day of April, the papers are full of the great temperance wave, not only in Ohio nor in the whole United States, but over the *whole wide world*. I fear I shall have to give up trying on these pages to give the notes of progress; for before it could reach you it would be stale news. I suppose you have all read over and over the declaration of Chancellor Lloyd George of England. He said in a speech, "We are fighting Germany, Austria, and drink; and the greatest of these three deadly foes is *drink*."

I have been much impressed during our recent Sunday-school lessons with the fact that in olden time, when God's people became disobedient and careless, he permitted ungodly nations to chastise them, even by wicked war and terrible loss of life. Well, it now begins to be made plain that this war was *permitted* because not only our nation but the nations of the world have been letting *rum* rule instead of Christianity and sober common sense. When the *whole Liquor traffic* is ruled out and *down*, the war will cease. "He maketh the wrath of man to praise him."

Now let us come down a moment to "breathing-spells" for you and me, as well as breathing-spells for nations.

I have set seven hens during the past winter, and have 75 chicks, big and little. Every hen made a good hatch, and only two chicks died. I have spoken of my "tussels" with sitting hens; but I have been priding myself that I have learned by experience to "suffer long and be kind," but, alas! I think I must have forgotten what I have so often said to you along in the line of "breathing-spells." A young hen (part Leghorn and part Buttercup) had just brought off a nice brood. I was trying to teach them to eat bread and milk; but the mother got it into her head I was going to deprive her of the loved ones she had waited patiently to bring out. She flew at me in a frenzy. I coolly straightened up, but she made a dive at my foot and trousers leg, and for a moment I thought that, with beak and claws, she would tear the leg of my pants to shreds.* Let me digress. Mrs. Root had been scolding some time because I *would* wear such soiled and untidy pants when visitors, both ladies and gentlemen, faultlessly attired, were coming at all hours of the day to see *A. I. Root* and his garden and chickens. I had objected, claiming that every time I put on *new* pants something happened, and it did

* My scarred hands and wrists testified to the ability of a sitting hen along this line.

seem as if something was sure to "happen" the very first day the pants were worn. Well, dear friends, I had just donned the new pants, and this was the "happen." I gently sent her to the other side of the room, but she came back like a whirlwind, more fierce than ever. Now, I *thought* I was cool and gentle, but I am afraid I *did* say something like this: "Why, you old *heathen,* who do you think is running this ranch, any way?" I gave her a send with my foot that made her bump against the opposite wall harder than I had intended. She uttered a plaintive moan and then toppled over. In a moment she recovered and called faintly to her chicks, and then—what do you think? With one wing dragging she came at me again. About this time two things occurred to me. First, what a predicament I should be in if she *died* with a dozen motherless chicks! Second, it became apparent that she would *fight* with her last breath. It is seldom you can teach dumb animals who is "boss" by brutal kicks. They will fight as long as a bit of breath is left. May be you have tried it with a kicking cow or a balky horse, and, dear friends, *humanity* is much the same. Neighbors go to law and declare they will keep on, even if it takes the last copper they are worth. "Not by might, nor by power, but by my Spirit, saith the Lord of hosts."

Over in Europe we are now having an illustration of this great truth, on a terrible scale. How about the poor hen? She is alive and well, but she cares for her chickens with a broken wing dragging. A good deal of the time it gets between her legs, and must be very annoying. It is to me a constant lesson in regard to "breathing-spells." My friend, how would *you* like to go through life, dragging a broken wing between your feet and ankles? I must catch her and clip it off; but I dread another encounter, especially while she has the chickens.

Shall we not enforce our laws? Yes, our laws must be enforced for the good of community; but while we enforce them let us be *sure* to *pray* for the transgressor. Love ye your enemies, *do good* to them that hate you, etc.

The following, from *Farm and Fireside,* very aptly illustrates what we have been considering. Would not the same tactics close the great war now in progress?

A friend of mine bought a farm with a disputed boundary on one side. He and the owner of the other farm became acquainted, and each found the other a pretty good sort of fellow; but still that old boundary dispute stood between them. The time came for a new fence.

"Here's the line," said the old settler.

"I understand," said the new man, "that it is *here.*"

"No," said the other, willing to cavil on the "ninth part of a hair," "we've always claimed this strip of land, and we must insist upon it."

"Now look here," said my friend, "I've had this line surveyed, and I haven't the faintest doubt that this strip is mine, but I think too much of your friendship to quarrel about it. Mind, I claim it's mine, but what *you* say *goes.* We'll build the fence on one condition—that *you* set the stakes. I'll make you judge and jury too. Set the stakes and we'll build the fence."

The old disputant squirmed. It wasn't fair, he said, to make *him* set the stakes. If he set 'em he'd set 'em on the correct line—he'd always claimed that strip, and he always would—

"All right," said my friend, "but you'll never get it by a lawsuit with me. You set those stakes and we'll build the fence in the morning."

The quarrel was settled. The stakes were set so as to take the strip from the man who set them—he had been neatly Glendowered.

I commend Glendower's policy to line-fence and boundary disputants everywhere. It may lose you a point once in a while, but it will save you trouble and preserve your self-respect.—*Herbert Quick.*

POULTRY DEPARTMENT

GREEN STUFF FOR CHICKENS, AND CHICKENS FOR GREEN STUFF.

The above heading is what I am going to talk about mostly; but incidentally I expect to wander from my subject somewhat. Since wheat is up "out of sight" I have been asking my poultry some questions, and they have (I *think*) given me some plain answers. I have, as you may recall, been giving the fowls corn and wheat in those elevated galvanized tubs whenever they felt disposed to fly up after it. At the same time we have sprouted oats for them to dig up, and usually some other kind of green stuff about every day. Added to all this they have ground fresh bones about twice a week. Yes, there is one thing more. We keep a bin of middlings to mix up with various stuff from the kitchen; and with the small potatoes (too small to cook) boiled up and mashed with the shorts or bran. With the above "menu" we have been getting close to four dozen eggs a day from five dozen hens during March. We cut off the wheat, however, about the first of the year, and were feeling pleased to see the egg-yield keep up so well.

Well, a few days ago the hens were following me about, sometimes getting under my feet, and evidently wanting *something*

they hadn't been having. I thought it was more meat, and gave them more ground bones; but it was about the same. Then I gave a bigger allowance of the wet-up middlings, and *that* seemed to "hit the spot." When chickens have been lacking something, and finally get it, they will all go and sit down on a log, in a long row, and look satisfied and contented—at least mine do that way. To make sure it was the *wheat* they wanted, I gave them some chick feed that contained wheat, and they grabbed ravenously every bit of wheat. They had gotten *tired* of corn, and wanted their old ration. The egg-yield increased at once after they got it.

Well, I have been experimenting to find out, especially here in Florida, what we can grow to take the place of the expensive shipped-in grain. Cassava answers finely, as I have told you; but it takes a long time to grow it, and it can't be grown at all where there is much frost. I told you, whenever you set a hen, to sow some radish seed; and radish comes so quickly, and is so greedily taken by the fowls, I think just now it is one of the very *best* things, not only for growing chicks, but for laying hens as well. Mustard and turnips are too slow. I get from the Kilgore Seed Co., Plant City, Fla., an ounce of mixed radish seed for ten cents, and I wish you all could see the row of radishes from this one ounce sowed four or five weeks ago. Of course I put on a little guano; but the cost of the seed and guano, compared to the basketful after basketful of "greens" is but a trifle. Sprouted oats *is* a fine thing, and we owe a vote of thanks to Edgar Briggs for stirring up the poultry world about it, as he did, even if he did get pretty good pay for so doing. Lettuce and cabbage are both fine; but it takes ever so much longer to get a crop of either than it does of radish. Collards, a sort of cabbage grown here in the South, I am just testing, and this reminds me of a story I tell visitors.

THREE PAYING CROPS FROM THE SAME GROUND IN LESS THAN SIX MONTHS.

The strip of ground is next to the mulberry-trees, where I had my poultry-houses for perhaps three winters. In November we dug the dasheens then on the ground, and planted Triumph potatoes. These were dug and sold in February ($2.00 a bushel), and collard plants set out. These last, from the start, were a "happy surprise." Some of the plants are now (April 2) 18 inches high and 30 across. I am told that down here, on good soil, you can pull off the lower leaves as needed, and the top will keep growing year after year.

I have recently seen a statement from some good authority, I think it was the *American Poultry Journal*, that if one were to give up either meat or green stuff for his poultry he had better stick to the "greens."

Some time ago I mentioned a little creek that crosses near one corner of our five acres. Well, this creek is mostly fed by the waste from artesian wells, and, of course, takes the drainage from excessive rains. One of our neighbors, Dr. Braymer, brought some watercress roots from New York and planted in this "run" some time ago. The roots or seed finally came down stream, and this winter there is a mass of watercress almost filling the stream from bank to bank, for almost one-fourth mile with some of the stems as large as a hoe-handle. A few days ago my neighbor Rood remarked he was almost ready to give somebody $50 to clean out the stream so the water could get away during a freshet. I suggested *two things* to neighbor Rood: First, that the tremendous growth of cress was largely owing to the fertilizer that had been carried into the creek from his fields by the unusual rains of the winter. I think he has put on his 25 acres something like $1500 worth. My other suggestion was that I would take it all away, without any $50, for my 135 chickens, big and little. With all our books on poultry, why can't we have at least one on green stuff for chickens? Will not some one of our experiment stations get at it? or, better still, the Department of Agriculture, Washington, D. C.?

THE "BLIND HEN," ETC.

Now for the second part of our heading. What *breed* of chickens will take most kindly to green stuff in the place of grain? When the Brahmas first came out it was claimed they would live and lay almost without grain, if given access to a clover-field, and it is, I think, admitted that Rhode Island Reds live largely on green feed *if they can get it.* I have objected to them in place of Leghorns because it cost more to feed them; but, wait a minute. I have already mentioned a Rhode Island hen that laid big yellow eggs in November when we got here, and scarcely a Leghorn laid at all. Two years ago I bought of neighbor Rood two Reds because my Leghorns would not sit. Well, this hen is one of them. She is blind in one eye, and her egg is much darker than any other, so you see it is no trouble at all to "trap nest" her. When we got here in November she was laying two days, and then skipped a day. Soon she laid three days, and then a skip, and a little later she laid every day. As I felt sure from former experience she would soon

want to sit. I paid little attention to it; but when the blind hen laid a yellow egg day after day through December, January, February, and clear into March, without ever a "cluck," I began to "sit up and take notice." This is *her third winter,* mind you. I have set seven hens, and have 75 strong and healthy chickens, and every setting had more or less yellow eggs from the blind hen. Some good authority has said there may be a lot of great layers scattered over the land, but the owner *doesn't know it.* She happened to lay a different egg, and be blind in one eye. I give here a clipping from *Farm and Fireside:*

LEARN TO DIAGNOSE HUNGER.

Lowering the cost of keeping chickens is not given half the attention it should receive. The majority of chicken-owners think their birds need grain when they act hungry and restless. The first move is to throw a lot more of expensive grain to allay the restlessness of the hens. In most cases what the birds are asking for is green, succulent, bulky food, fresh water, grit, and animal food or bone.

The heavier breeds in particular would be much better off in vigor and productiveness in many cases if half of the costly grain were replaced with a good quality of cut or ground clover or alfalfa hay, some roots, cabbage, apples, potatoes, or silage. By such a change of feeding costs can be reduced.—B. F. W. THORPE.

Over and over again, where you read of remarkable success with chickens you find it was made by being right with the fowls, and making a careful study of the whole matter. The clipping above hits it exactly.

DWARF ESSEX RAPE.

Some time ago, while "down East," I visited a poultrykeeper who had his fowls in a yard full of rape two feet high or more. He wanted to show us a $50 hen; but she kept hiding in the luxuriant rape, so it was almost impossible to get a sight of her. Now, this is the ideal condition. Have your rape-patch large enough, or your flock of chickens small enough, so they won't eat the rape all off clean in a day or two. I have a small enclosure full of rape now that pleases me; but if I were to let the whole 135 in it at once I fear there would not be a green leaf by night. What can we grow that will take care of itself like weeds, almost or quite without cultivation or fertilization, and that the chickens will eat? There is waste land, more or less, almost everywhere (as well as down here in Florida) doing no good to anybody or anything. Mulberries fill the bill pretty well; but they are not "greens."

P. S.—Whoever writes that book on "Greens for Chickens" should keep in mind we don't *want* a book at a big price with very little real "greens."

FETERITA: MORE ABOUT IT AS A SUBSTITUTE FOR WHEAT.

As I haven't seen any thing in High-pressure Gardening about feterita I thought you would like to test it in Florida. I am sending you a sample under separate cover. Plant 12 to 18 inches apart in the row. I think it is a great chicken feed, and it makes heads in Kansas without rain.

Concordia, Kan. LEWIS EELLS.

P. S.—We think feterita good boiled, and eaten with cream.

The "P. S." is the "big thing" about the above letter. Having some of the grain on hand, we boiled it in a farina-boiler, and Mrs. Root and I as well as the neighbors were "happily surprised" to find it a really delicious, nourishing food, even better than the dishes made from the flour. Now, here is the great point: Grow it in your garden; put the heads of ripe grain in a bag (I have just done it), thrash, and cook. Can any "shorter cut" be made "from producer to consumer"?

ON THE BOOKSHELF

The Country Home Month by Month. —Edward Irving Farrington. Laird & Lee, Inc., Chicago, $2.00.

One of those wholesome, readily understood manuals of country living is this new work by Mr. Farrington, sometime editor of *Suburban Life,* and a writer on general rural subjects. Beekeeping justly claims its share of his attention in a series of reminders, month by month, of what to do in the apiary—in May, prevention of swarming; in October, preparation for winter. "No country home is complete without a colony or two" is a broad statement, but one of which the backlotter and farm beekeeper will realize the truth.

For the general farmer who wants suggestions for beginning beekeeping along with his monthly hints on farming, gardening, and stock raising, this work is designed. "With painful recollections of the many occasions on which the author has remembered things to be done just too late to do them, this book has been written with an intent to help others in doing the right thing at the right time." Not a treatise on beekeeping, it would not instruct a specialist in beekeeping in anything he does not know already. The notes on apiculture are orthodox, however, Mr. Farrington being a member of the craft himself.

Vol. XLIII MAY 15, 1915 No. 10

Gleanings in Bee Culture



A City Apiary in Pennsylvania

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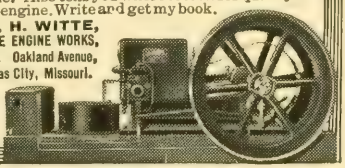
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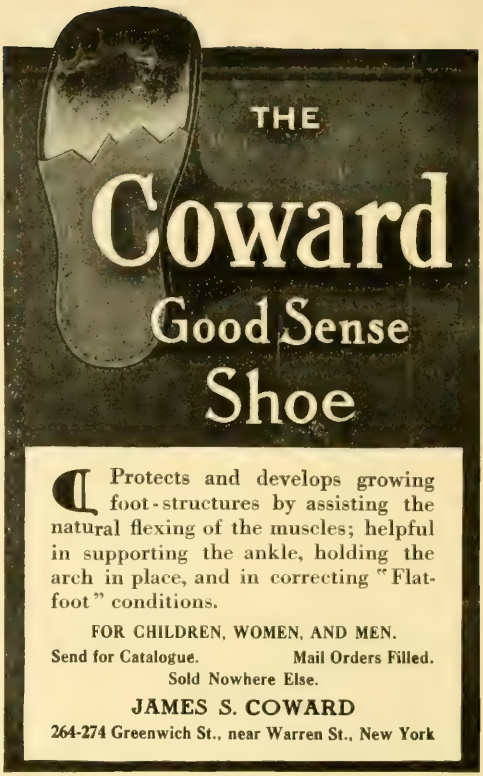
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EDITORIALS

Various Methods of Wintering in Idaho

We hope to show next fall the methods used by J. J. Anderson, of Salem, Idaho, in wintering his bees in eastern Idaho. He is one of the best beekeepers in the valley, and there are many of them there. In this connection it is fair to say that this territory is already well stocked with bees.

Our Cover Picture

When the total number of apiaries in cities is considered, the proportion of complaints because of the bees is seen to be very small. If the beekeeper is careful where he locates the bees, and if he handles them intelligently, there is really no reason for their becoming a nuisance at any time. A good deal depends upon where the hives are placed. If there is an alley or passageway directly in the line of flight the bees at certain times of the year are sure to make trouble.

The picture on our cover for this issue shows a well-placed city apiary belonging to Chas. Y. Hake, of York, Pa.

How Bees Have Wintered

Late reports show that bees have wintered unusually well, taking the country as a whole; but there were quite severe losses in Pennsylvania, New York, northern Ohio, southern Michigan, and a 10 to 25 per cent loss in and about Denver, Colo. There seems to have been some unfavorable weather or fall flora, or something in the regions mentioned, that caused a loss of anywhere from 10 to 50 per cent of the bees. The losses seem to have been heaviest in parts of Pennsylvania and New York, ranging anywhere from 25 to 50 per cent. Most of the reports from Michigan are unusually good, and the prospects for clover in both Michigan and Wisconsin are excellent.

In some of the southern states the bees have not built up quite as well as usual.

Wintering Outdoors in Single-walled Hives

A few days ago we looked over a couple of apiaries some fifteen miles east of Medina. The bees were in single-walled hives, exposed to the north and west; and yet, remarkable to relate, they wintered in good condition. Fortunately there was no aster nor other fall sources of honey in the vicinity. The hives were filled with the best grades of honey. One owner said he had not touched the brood-nests for over a year. He just let them alone. He had taken no honey from them, because he said he thought they would need all they had. He was wise.

The other man had taken quite a little crop of honey, but left enough in the hives, for he likewise had not disturbed their brood-nests. The colonies were strong when they went into winter quarters; and the fact that they had not been tampered with was probably one strong reason why they wintered so well.

A few colonies in double-walled hives, however, showed up stronger than those in the single-walled. This only goes to prove that with good stores, young queens, and strong colonies, bees will winter sometimes in spite of wind exposure and only a single thickness of wood between them and the weather. That they will do better in double-walled hives was also proven.

Is a Pair of Frame-tongs a Necessary Tool for a Foul-brood Inspector? Some of the Troubles of a Bee Inspector

One of our state inspectors, Mr. A. C. Ames, of Peninsula, Ohio, is using frame-tongs for pulling frames out of hives. While this tool is not particularly needed in modern apiaries, it is almost a necessity among the old-fashioned or farmer beekeepers who do not disturb their brood-nests from one year's end to the other. Frames are often badly spaced, too far apart or too close together, or, even when properly spaced, so tightly glued down that it is

difficult to remove them, even when a good tool or pry is used to break the propolis connections. Poor spacing results in comb attachments so that it is impossible for the ordinary pair of hands to get a good grip on a frame of comb. It is then that a pair of frame-tongs with double jaws comes in very handy.

We have heretofore not thought much of such a tool, but we are beginning to believe that supply manufacturers ought to furnish something of this kind for the use of inspectors.

On some jobs they should have a hatchet, chisel, crowbar, frame-tongs, bee-gloves, bee-veil, clothes more than sting thick, and the patience of Job. We have gone with foul-brood inspectors on various occasions, and we know of the exasperations that one meets in trying to go through some hives of bees. Home-made hives and home-made frames, neither of which fit the other, make a combination which, if they have not been tampered with for three or four years, will exasperate even an angel. An old box hive or a log gum could not be worse.

The New Queen-cage Candy; How to Make it

So far the tests are proving satisfactory with the queen-cage candy made of invert sugar and ordinary commercial powdered sugar. The brand of the former that we have been using is called nulomoline, made by the Nulomoline Co., 111 Wall St., New York. This product is used in exactly the same way as honey. As there may be some who are not familiar with how to make Good or Scholz candy we will give our method.

The invert sugar, or nulomoline (or honey of best quality) is heated to a temperature of about 140 degrees Fahrenheit. This is not to sterilize it, but to make it mix better with the powdered sugar. The latter is poured into the hot syrup little by little, and stirred until the mixture cannot be stirred any more. It is then placed on a board which is covered over with powdered sugar, and handled like bread dough and flour. More sugar is kneaded in until a stiff dough is formed.

The success or failure in making this candy all depends on whether *just the right amount of sugar* is added to the honey or invert sugar syrup. If too much is put in, the dough will be too stiff and hard, and the bees will starve on it; if not enough, it will "run," daub, and kill the bees. We make our candy so that it will hold its shape and position when the temperature of the candy and of the atmosphere around it is 90. This is about as hot as summer weather ordinarily becomes; and unless the candy will stand that temperature it will flatten out and "run" in very warm weather.

Of course invert sugar or nulomoline cannot transmit foul brood; and if it can take the place of honey, other things being equal, it is greatly to be preferred. So far the new candy remains moist longer, and has a better flavor than that made with honey boiled for 20 minutes to sterilize it. This long boiling we believe is what killed so many bees and queens in the mails of last year.

Honey-crop Conditions; Clover Prospects and Prices

During the last few days, according to the Weather Bureau maps to which reference was made on page 349 of our last issue, there have been general rains over the greater part of the United States. All reports show that the prospects are good from what white clover there is in sight. In some localities it is reported that there is only about one-half the amount of clover that there has been in former years; and even if all other conditions are favorable there will be only half a crop. In other localities there seems to be the usual amount of clover. The drouth of last fall, and the winter-killing of last winter in some places, have been responsible for the reduction in the clover regions.

There have been general rains in Texas, and the prospects are good for a crop from that section of the country. The early rains in California gave mountain sage a good start, and the prospects were excellent. A partial drouth followed, but this was quickly dispelled by frequent rains that began on April 23d. These have continued with more or less frequency ever since. These rains, according to those same Government maps, have been general over all California. There will be a light crop of orange-honey, and a fair crop of mountain sage. Had it not been for an intervening drouth and the hot winds in southern California the crop of mountain sage would probably have been record-breaking.

Professor Baldwin reports a good yield from orange at Deland, Fla. Whether others in his state are as fortunate as he we have not yet learned.

In Colorado and some of the other mountain states it has been reported that the mountains contain less snow than usual. This may curtail somewhat the yield from alfalfa. There will be the usual good yield of alfalfa in the Imperial Valley.

To recapitulate: There will be from one-half to two-thirds of a crop of clover; slightly under an average of best grades of alfalfa; from one-half to a fair yield of orange in California; from one-half to two-thirds of a crop from mountain sage; full crop in Texas.

Practically all the comb honey of the better grades is cleaned up. There should be a strong demand for new No. 1 fancy comb honey.

The price of extracted will probably rule about the same as last year. But in order to get this, more comb honey should be produced this year than last or extracted will slump in price. The heavy sale of sections warrants the belief that there will be more produced.

Later.—Just as we go to press our manager at Los Angeles writes as follows:

Southern California in general has had a series of light rains coming one on top of another. This should greatly increase the chances for a good sage flow, while it has undoubtedly injured the possible output of orange honey inasmuch as the oranges have been in full bloom during the period of these rains, and consequently the flow has been shortened by just so many days of rains, clouds, and cold. This will much more than be made up by the benefit to the sage.

Bees Necessary in Southern Grape Culture

FACTS of pollination are of the utmost importance in fruit-growing. Every horticulturist knows that some classes of fruit will yield lightly, if at all, when far from other varieties, and that, for best results, not only should varieties be selected that pollinate well together, but some provision should be made for the transference of the pollen. The wind cannot be relied upon for this work.

The Muscadine grapes, according to the North Carolina Experiment Station, are self-sterile—that is, the vines which produce fruit must be fertilized by pollen from other vines. The only vines capable of doing this bear no fruit. So it is necessary to plant both the male and female vines close together, and thus insure that the pollen be carried from one vine to the other.

Unfortunately bees are not nearly so active on the blossoms of the Muscadine grape as they are on other plants. The small proportion of flowers which develop into fruit can probably be traced to this fact. Says Bulletin 209, "Every effort should be made to encourage bees. It is very evident from our results that at least one hive of bees should be kept where any large number of vines are grown."

The Muscadine grape is more important in the South than any other. In North Carolina it is estimated that more Muscadine grapes are grown than all others combined. They flourish from Delaware south to Florida, and west as far as Texas. Points of superiority over other grapes lie in their resistance to insect pests and fungous diseases, their ability to grow in poor dry sandy soil, and their immunity from frosts, due to their tardy blooming period.

Oregonian Beekeeping

"Beekeeping for the Oregon Farmer," by H. F. Wilson, Entomologist Oregon Experiment Station, Bulletin No. 168, Oregon Agricultural College.

The bulletin opens, following the introduction, with a short history of bee culture in Oregon. The author believes that bees were first imported the year after the discovery of gold in California, and that they were brought along during the great rush for the Coast. A considerable amount of gold must have been discovered in the bee business, for the first colonies sold for $125 a colony. Following this early importation not many more bees were brought in, the rest developing largely from those imported by the early settlers.

The early portion of the report is a survey of the present situation of apiculture in Oregon—practically the same matter which Mr. Wilson prepared for GLEANINGS, page 895, December 15, 1913. Most of the honey comes from central Oregon, while the Columbia Basin is second, and southern Oregon third. On the average, one out of four farmers keeps bees. A distribution map has been prepared showing the approximate number of 50,000 colonies. These are worth, roughly, $250,000.

"For the actual amount of money invested there are few agricultural pursuits that will give returns as great as those that can be made by beekeeping," encouragingly asserts the writer; but he is careful to add that, "like every other agricultural industry profits in beekeeping are secured by hard work and careful attention to business."

The rest of the bulletin is given over to a discussion of the bee business in its manifold phases. His remarks under the head "Why and When Beekeeping does Not Pay" are valuable in accounting for many of the failures. Varieties of bees, necessaries of equipment, types of hives, manipulation, and general management to avoid or overcome the obstacles which sooner or later confront every beekeeper, are all dis-

cussed in such a manner that the pamphlet is made a short text-book, valuable not only to the Oregon novice but to any one else taking a hand in the game.

Bees and Fruit-bloom in and about Medina

Our readers will remember that fifty-acre apple-orchard some ten miles north of Medina, and how that the proprietors of that orchard have desired to have a large number of bees in it. It will also be recalled that the first year the present management took charge of this orchard they secured, with the help of the bees, and by spraying and trimming, 16,000 bushels of apples. The following season was not as favorable, but they took another big crop, but not as large as that of the previous year. This year we again put some fifty colonies in the orchard; and yesterday, May 6, we drove down there to see how the bees were working on the blossoms. The trees had not all come into bloom; but some where the blossoms matured had plenty of bees on them. In fact, there was a distinct roar such as one hears near basswood-trees. A glance upward showed hundreds and hundreds of bees; and it also showed something else. Some little flies, or bees, or what looked like bees, hovered in the air. These latter would occasionally alight on the center of a blossom; but they were by no means as persistent and active as the honeybees. They would hang and poise on the wing like a hummingbird, then dart like a bullet in one direction or the other. Sometimes they would alight on the green leaves, and at other times on the petals of the flowers. Sometimes we caught them in the act of helping themselves to pollen; but they made no effort, so far as we could discover, to get at the nectar at the base of the blossom.

We were so much interested that we made another trip, taking our head queen-breeder, Mr. Mell Pritchard, who is also the "bug man" of the A. I. Root Co. Some of the bees which he saw he pronounced the solitary sand bees, a very small black bee with a head like that of a common honeybee, but very different in its general appearance. Some call them sweat bees. There was still another kind of bee or fly that was more numerous than the last named. They were smaller than honeybees, and looked very much like small yellowjackets. They had yellow bands, and the ones which we captured showed that they had pollen on their legs and on their bodies. While they were very numerous in the orchard, and no doubt were doing something in the way of pollinating blossoms, they were by no means as industrious and persistent as the honeybees. The latter would seem to rush from blossom to blossom in the greatest haste. One bee would pollinate a hundred blossoms while these flies would pollinate only one.

On coming home Mr. Pritchard pulled out his authority (Comstock's book), and identified these bees as the *Diptera;* that is to say, they were not bees but *flies.* The description showed plainly that they were the yellow-banded species belonging to the genus *Syrphus.* They do much good by destroying colonies of aphids. There are other species of this family that resemble bumblebees, and others the honeybee; still others the wasp. One species "so closely resembles a common honeybee," says Prof. Comstock, "as to be often mistaken for it."

In this connection we have wondered whether in that Pejario Valley, California (see Gleanings, p. 305), where there are 15,000 acres of apple-trees, and where it was alleged no bees were needed, there were not present myriads of these flies. In referring this matter to the Entomologist, Professor H. A. Gossard, of the Wooster Experiment Station, Ohio, he gave it as his opinion that there was nothing to prevent these same flies from being present provided there were colonies of aphids for them to feed on. You will remember that the Horticultural Commissioner of Pejario Valley, supported by Professor Woodworth, of the University of California, stated that the apple-trees of that valley did not require the presence of the honey-bees; that the two varieties of apples grown there, the Newtown and the Bellflower, were self-fertile. One of these, the Bellflower, is known to be sterile to its own pollen in the eastern states. We have just been wondering whether or not either of these vaieties does not require the agency of bees or insects. We proved that there are bees in the valley; but it is evident that there were not enough to pollinate such a vast number of trees. Is it not possible that the syrphus flies are doing this work? On the other hand, Professor Gossard explains that there is quite a difference in the formation of the blossom of the same variety of apples in the East and in the West. If this is true it may account for the fact that a variety that is self-fertile in one locality is sterile to its own pollen in another. In the one case the pollen cannot reach the ovaries of the blossom without the help of insects, and in the other no such help is needed. This whole question is an interesting one. If any of our readers can solve the problem we shall be glad to hear from them.

Spraying Trees Just Before the White Petals Fall; Is the Practice Dangerous?

WHILE Mr. Pritchard and ourselves were making observations at the big orchard north of Medina we discovered that the bees would ignore certain of the apple-blossoms, and that those that they did visit showed that the anthers of the stamens had turned slightly brown. This would indicate that the blossoms before yielding nectar must be ripe. Mr. Pritchard also called our attention to the fact that the bees actually visited and stayed longer on the old blossoms where the white petals had entirely fallen off. We thought he must have made a mistake; but after a little scrutiny we found numerous cases where the bees were gathering nectar from the old blossoms without a single white petal on them.

To-day Professor Gossard came down with Mr. Walworth, the bacteriologist, to get some material for another investigation. We drove them over to this orchard. He found, just as we did, that the bees were gathering nectar from these old blossoms from which the petals had fallen. Mr. Walworth then dissected one of these and found considerable nectar, although the blossom was denuded of all bright colors.

This has a practical bearing to those who have bees in the vicinity of orchards. It means that we have been spraying our trees at the wrong time. The usual instructions sent out recommend applying the spray just about as the white petals begin to fall. The supposition has been that at this stage no more nectar is yielded, and hence no bees would be killed; but the observations made by Mr. Pritchard, Prof. Gossard, and Mr. Walworth and ourself, show very clearly that bees gather not a little nectar *after* the petals have fallen. If arsenate of lead is poisonous to bees, which is ordinarily applied at this time in the form of sprays, then the recommendation to apply the poison just before or after the petals fall is *just at a time* when considerable damage will be done. It would seem, then, that our instructions should be modified so that the arsenate-of-lead sprays shall not be applied until several days after the petals are gone.

The year that our neighbors in the fifty-acre apple-orchard secured such an enormous crop of apples was the year when they sprayed just before the petals began to fall; hence they must have sprayed when the blossoms were yielding a large amount of nectar. Whether this spraying killed our bees we could not tell. If so, there were no dead bees or brood showing about the hives.

In view of the facts above stated, and that some do not believe that arsenate-of-lead sprays kill bees, we shall have to say we don't know; and yet we have on file large numbers of reports that look very much as if the bees had been poisoned by the thousands by spraying when in full bloom.

G. W. York, Former Editor of the American Bee Journal, Statesman and Lawmaker

ON our recent western trip we had the pleasure of meeting our old friend George W. York, who for many long years was sole owner and proprietor of the *American Bee Journal* as well as its editor, and who, prior to that time, had served in the capacity of assistant editor and manager under Thomas G. Newman for several years. After many years of arduous labor, Mr. York sold out to the well-known business men and beemen, Charles Dadant & Sons, of Hamilton, Ill. Mr. York never claimed to be a practical beekeeper, and never posed as such in his regular editorial columns. He said to us recently that the *American Bee Journal* had improved in one respect; and that was, there are practical beemen at the head of it as publishers and editors, and he noted with great pleasure the apparent life and growth of the journal. After the continuous strain of many years of hard labor, during which Mr. York did the work of two or three men almost every day of his life, he began to feel the need of a change. A business opportunity presented itself, and he sold to his old friends the Dadants, as before explained. He then went to Sand Point, Idaho, going into the fruit and dairy business, where there was entire change of profession, climate, and surroundings away from the turmoil and noise of a big city. One can scarcely blame him for doing this, for sometimes there come periods in one's life when a change in profession, although it sometimes results disastrously in a financial way, is desirable. Mr. York, however, in the parlance of the day, is making good. While as he says he is not getting rich quick, he is making a living, and is happy and well. His picture taken expressly for this journal shows it. He is happy, because he is outdoors right next to Nature. Bees? Yes, he keeps a few.

It was not long before the people of Sand Point, Idaho, began to discover in Mr. York not only a friend and neighbor but a citizen. Much against his protest he was elected a member of the city council; and when he got into that body there was something doing, for Mr. York initiated a movement to clean out the undesirable element of his

town. It was not long before they began to think of him as a fit candidate for Representative from his county. He has been a life-long Prohibitionist; but as there was no organization of the Prohibition party there, the Republicans insisted on his running as a Representative. He protested that he was not a Republican, that he had never had any inclination to get into politics, and he much preferred to stay out of it. But tremendous pressure was brought to bear, with the result that he consented to have his name used, with the understanding that his friends would not expect him to do a single thing toward his own election.

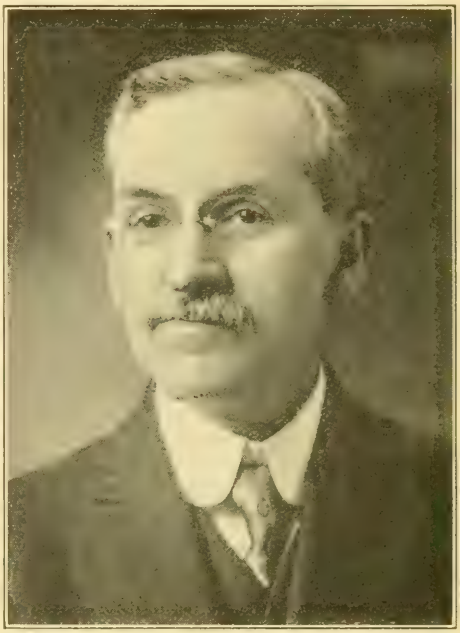
"You leave that to us," they said. It is unnecessary to say that he was overwhelmingly elected.

When he went down to the legislature he was anything but a nonentity. In fact, he soon become one of the leaders in the House. As might well be expected, while he bore the Republican label he was still a Prohibitionist at heart. A temperanec wave was sweeping through Idaho, and many members of the General Assembly were elected on that issue. Mr. York was not afraid to show his colors, and the result was he was regarded by every one as one of the real leaders among the Republicans and Democrats of the House. So far as we can ascertain, he was the real leader in temperance matters, but this he denies.

Both the House and Senate were overwhelmingly temperance; but a few of the minority in the upper house attempted to filibuster. The House passed one temperance bill unanimously. Mr. York and his colleagues finally told the bunch that the House would not pass a single bill of any kind until they passed the temperance bill. The wet Senators concluded that it was a mere bluff. Things went on in this way for a couple of weeks without the House passing a single Senate bill. Finally when they saw that the members of the House meant what they said, they passed the bill, and shortly after passed other temperance bills that will make Idaho in 1916 the dryest of all dry states in the Union. A great deal of credit, no doubt, belonged to our old friend York for this.

Some of his colleagues told us that he was tactful, courteous, and had a way about him that would melt all opposition. When it was necessary to fight to the last ditch, Mr. York would be found in the fore front. He disclaims any credit for what he did for the temperance and other measures.

We have before said in these columns he was the father of one of the most drastic foul-brood bills that was ever put before a legislature. It passed the House and Senate by a large majority; but the reform governor, not properly understanding it, vetoed it. For particulars see page 258. It was certainly no fault of Mr. York that the bill did not become a law. He and his friends interviewed the Governor, and explained the thing in all its details; but apparently His Excellency did not understand, and vetoed it on the ground that it provided for too many inspectors, not noticing that the law was properly safeguarded on this point, by a limit on the general appropriation—$5000—a modest sum in this day and age. Other states have used as high as



GEORGE W. YORK

$10,000, and some have gone as high as $30,000.

We saw Mr. York busily at work in the House before he knew we were in town. He seemed to be one of those legislators who are always on the job.

This legislature of which our friend was a member presented a remarkable contrast to what the former one had been; and the fact that there was one man, or several of them, who believed in churches and Sunday-schools, in this General Assembly, provoked no little comment. Mr. York was in general demand to speak before churches and Sunday-schools, and it seemed almost a novelty for a Representative to stand up in the pulpit and talk about God.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



REPLYING to J. A. Heberle, p. 379, I think heather is not to be found in this country. A patch was once started, in New Jersey, I think, but did not succeed. As he says, heather honey is not considered first-class in Germany, but, somewhat curiously, in Scotland it is counted the finest in the world.

ALL the while I'm learning more and more that rules good for me may not be good for others. One of the things that I think I know for certain is that it is not advisable for me to supersede any queen merely on account of her age. Now comes P. C. Chadwick, p. 353, and says he lost 10 per cent of his two-year-old queens in winter and spring, and not one of his one-year-olds. If I had his locality, or his bees—I wonder which it is—I'd suffer no two-year-olds except a few extra good ones.

GLAD to see that good word about Editor Bixby, p. 304; but why didn't you tell us about his wife? I suspect she's the better man of the two. [If she is not the "better man" she is certainly his equal. She knows how to make muffins to go with honey that are superior to any thing we have ever tasted anywhere. If they could be sold at either of the great expositions on the Pacific Coast, with honey and butter on them, they would draw crowds—yes, a regular stampede of people. She is just as much interested in bee problems as any beeman we ever met. It is not often that we find a woman so enthusiastic about her husband's business. She did and could keep up with two bee editors, and that is going some.—ED.]

IONA FOWLS, I'd give a pretty penny for a talk with you. You say, p. 377, that Mr. Alexander "took bees that had not begun swarming." Yes, but he also took bees that had started cells, for he especially directs to look the hive over to see if it contains cells, and "If it does, destroy them." (See A B C and X Y Z, p. 365.) In GLEANINGS for Aug. 15, 1911, p. 490, to which you refer, I replied, to a question, that brood over an empty super would not start swarming below; but I didn't say, and I didn't think, that swarming would be started if there was nothing but an excluder between the queen and the brood above. In fact, that's the very thing I've done many a time, after cells were started, and even after swarming, and I don't remember that I ever did it before cells were started. And I count it a sure cure for swarming.

J. L. PEABODY, the 83-year-old who appears on page 343, is the man who invented the first honey-extractor I ever used or saw. He's the man of whom beekeepers may feel proud. [One of the privileges we had at the National convention held at Denver was to see and hear Mr. Peabody. The president invited him to the platform to address the meeting. Notwithstanding his early connection with the honey-extractor, he was very modest in saying that not he but his brother should be given the credit for building that early machine. He was generous to say, however, that A. I. Root built a better machine because it was geared up. He then went on to tell his early experiences, all of which was interesting, because we were listening to a man who was one of the early pioneers, and whose name has been linked with those of Langstroth, Quinby, Wagner, Gallup, Tupper, and others of those early days; and while we are about it we might as well link our own Dr. Miller with the group.—ED.]

YOU'RE trying, Mr. Editor, p. 347, to find why aster stores act differently in different localities; and while you're at that you may as well tell at the same time why your bees work on aster and mine don't. Asters and goldenrods a-plenty here, but seldom a bee on them. [Can't answer that question; but next fall we hope asters will not yield in our locality. If the aster honey should all be used up in brood-rearing it would do no harm; but asters yield such an infinitesimally small quantity that the poor bee that is out in the field after it must go miles and miles and miles through swamp brush tearing its wings before it can get a load. In our opinion bees will wear themselves out in working on aster—more so than on any other honey-plant. One apiary that we had near the Akron swamp was in fine condition by the first of September. By the first of October those same colonies dwindled down to half their former strength. It looked as if half of them had been poisoned. The real fact is, that the aster bees had worn themselves out by long flights, and died a natural death. This left the colonies about half strength, with bad stores for winter. Fearing that these stores might kill them we moved most of the aster bees to Virginia, where they could have a flight every few days.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



"Setting bees out of the cellar," by E. S. Miles, p. 222, March 15, is full of good advice, and well worth the careful attention of inexperienced beekeepers.

* * *

Mr. Doolittle, page 224, March 15, discusses record-boards in his usual common-sense way, and I, for one, agree with him that there is nothing better than a smooth board.

* * *

Mr. L. H. T. Stone, of Cambridge, Mass., wants to know what I meant by single hives well packed, Jan. 15. Well, I meant just one colony in a case instead of four as Mr. Holtermann packs them.

* * *

Dr. Miller says, page 177, March 1, "I may say that my bees in the cellar are never entirely quiet. There is always at least a gentle murmur, something like a soft breeze through pine-trees." Thank you—just what I wanted to know; just as good as going into your cellar myself. Mine is the same.

* * *

I received this week a sample of scarified sweet-clover seed from C. P. Dadant. A lot of it that I placed between damp paper, less than two days ago, has already nearly all sprouted. I believe this treatment of the seed is going to prove a great help in introducing this clover and getting farmers to sow it. Of 72 tests made by the Department of Agriculture an average of only 36 per cent germinated.

* * *

Hawkweed, or paintbrush, as it is often called, is one of the farmer's worst pests here in Vermont, and it is getting to be quite common. It spreads by underground roots as well as by seeds. The seeds are winged like the dandelions, and the wind carries them everywhere. It seems to thrive on all sorts of soils. I have worried for fear it would ruin our bee pasture when it becomes more abundant, as it surely will. It seems to be utterly worthless, and quickly runs out our native grasses in pasture and meadow. A farmer, however, in a nearby town has discoveerd that sweet clover will clean it out and produce a forage crop of value. One more mark to the credit of sweet clover.

* * *

Mr. Byer, p. 178, calls attention to a statement of Arthur C. Miller in the December number of GLEANINGS that "any lively youngster is supposed to be able to do the trick" of making candy, and enquires how I feel now. Pretty well, thank you. How do you feel? Now, the trouble with me was not in the making, for I made most beautiful blocks of candy as hard as bricks. But the trouble was they wouldn't stay made. I set most of them away in a cool room until I wanted to use them, when they began to soften on the outside and run, and the block would bend, and twist out of shape. What a mess! I suppose I used too large a proportion of honey or corn syrup. Thanks to Mr. George H. Rea, page 150, Feb. 15, one pound of honey to twenty-five of sugar is about right.

* * *

After speaking of "Upward Absorbents vs. Sealed Covers," the editors of GLEANINGS say, page 90, "Strictly speaking we did not use sealed covers, but an arrangement that was a compromise between the two extremes." "This is the arrangement that at Medina has generally given us the best results." Exactly; and I believe this will give best results in most places. All that is needed in upward ventilation is to get rid of the moisture and no more. Old cloths coated with propolis, a board or two pieces of boards laid on loosely, or even a glass with a slight crack around the edges, answers every purpose. It doesn't take a great deal to let it escape. We do not think alike, often, because we do not understand each other.

* * *

Langstroth wrote more than sixty years ago, "I come now to mention a substitute for liquid honey, the value of which has been extensively and thoroughly tested in Germany, which I have used to great advantage. It was not discovered by Dzierzon, although he speaks of its excellence in the most decided terms. The article to which I refer is plain sugar candy, or, as it is often called, barley candy. It has been ascertained that about four pounds of this will sustain a colony during the winter when they have scarcely any honey in the hive. If it is placed where they can get access to it without being chilled they will cluster upon it and gradually eat it up. It not only goes further than double the quantity of liquid honey, but is found to agree with the bees perfectly; while the liquid honey is almost sure to sour in the unsealed cells, and expose them to dangerous and often fatal attacks of dysentery." Is there anything new under the sun?

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Old Dutch Cleanser is excellent for removing propolis from the hands.

* * *

Dr. Miller, page 261, April 1, advises planning ahead to have extra combs of honey to feed bees instead of making candy. No better advice could be given regarding this matter.

* * *

Look at the picture of a ten-dollar honey-house, page 327, April 15, and see if you think it could be built for that price in California. It looks to me as though it would take two carpenters a day to build it, which would figure eight dollars for labor alone.

* * *

Uncle Sam has kindly sent me one of the new cook books for using honey. It has some dainty recipes that I am anxious to have tried.

Later.—I see my wife looking at those recipes, which makes me believe something good is coming.

* * *

Redwood hives should always be nailed with cement-coated nails. When redwood gets wet the water and wood have a tendency to form an acid that eats metal very rapidly. The cement coat prevents this to a great extent. I use a seven-penny cement-coated box nail for nailing my hive bodies, covers, and bottoms.

* * *

Louis H. Scholl, in the March 15th issue, says: "But after all, the secret is to begin to prevent swarming before the desire to swarm has ever awakened in the colonies." Splendid advice—splendid! In one apiary of 170 colonies I have not had a single swarm issue this season. No cells have been clipped to prevent it, and other apiaries in the vicinity have been wild with swarming.

* * *

The editor's remarks on Dr. A. J. Cook are well deserved, and entirely fitting the man. I have smiled on several occasions, especially at our state conventions, when some small caliber opened up a rapid fire on this big 42-centimeter character. Dr. Cook has left an indelible impression on the beekeeping world as well as in other lines, and no amount of criticism of this versatile character can undo what he has done. We need more men like him—big, broad, scientific men.

I am indebted to Mr. E. Ockerby, of Western Australia, for a government pamphlet entitled "Bee Farming." It contains some very interesting information regarding the bee industry in that great and only partially developed country. I have more to say of this later. Mr. Ockerby is but a boy in years, but a man in knowledge. He is one of a company of some thirty-five boys who are selected from the Young Australian League, which is much the same as the Y. M. C. A., to tour the United States to gain knowledge and experience through travel. No boy can be selected for this trip who does not come up to a certain mental, physical, and moral standard. The expense of the trip is paid partially by the Australian Government, partially by the parents of the boys, and partially by money derived from entertainments given by the talent of the company. No one in this company is allowed the use of tobacco—in fact, they have no desire for it. They are now traveling toward the East. Should any of my readers meet with them, treat them kindly. They are bright boys, but most of them are poor.

* * *

Rainfall has been quite general over the southern part of southern California, ranging in amount from one-fourth of an inch to one and one-half inches. The extreme southern end received the most. As far north as Ventura and Santa Barbara counties no report of rain is given, and the presumption is that none of consequence has fallen that far north. The value of it remains to be seen; but it is my opinion it will be of no great help this season to any thing except possibly the white sage and late buckwheat. The button sage has not developed as it gave promise of doing at one time. There is little hope in many localities from this source, and nothing very big may be expected from it in any place. Hope for a crop from it has already been abandoned in some localities. The orange bloom was never better, and never yielded more nectar; but the best part of the blooming period has passed with the sun under the clouds, and the bees unable to work. The crop from this source has been more than half lost by bad weather. In fact, the general outlook at this writing for orange and sage honey is anything but promising.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



TWO PROGRESSIVE COUNTY ORGANIZATIONS.

I have just had the pleasure of attending a meeting of the Bexar County Beekeepers' Association, at San Antonio, Texas. I am pleased to note the number of organizations of beekeepers increasing in Texas. Time and again I have called attention to the importance of such organizations.

The officers are, Lewis Maverick, president; J. K. Smith, vice-president; E. G. LeStourgeon, secretary-treasurer; Henry D. Grossenbacher, foul-brood inspector. The standing committees appointed are: Wm. Cravens, chairman Legislative Committee; S. A. Gould, chairman Committee on Bee Diseases; A. P. Heinen, chairman Entertainment Committee; Wm. Zimmerman, chairman Program Committee.

The other organization is the Frio County Beekeepers' Association, with Pearsall, Texas, for its postoffice address. George Curtis is president; J. N. Mayes, vice-president; B. I. Gilman, secretary-treasurer; B. F. Cude, sergeant; R. A. Little, foul-brood inspector. On committees are E. G. LeStourgeon, O. E. Milam, and Guy Wood, Program Committee; Frank Talbot, C. T. Hardy, and F. T. Lester, Bee Disease Eradication; J. C. Campbell, C. G. Mayes, and J. C. Eldridge, Entertainment Committee.

* * *

THE TELEPHONE IN BEEKEEPING.

It is a great gratification to the beekeepers that the rural telephone is finding its way into all portions of the country. Nearly all of our apiaries are now located within easy reach of these rural telephones, and they are a blessing in the many ways these can be put to use. It is now quite an easy matter to get information from any of the localities that we are not able to visit ourselves. Most of the owners of the land upon which the apiaries are located have telephones. As they have more or less interest in the welfare of our work with the bees on their place we need only call them up for the information desired.

In several instances such persons have called me up of their own accord to remind us of swarming going on, or that it was their belief that more storage room would be necessary on account of a sudden honey-flow. Only yesterday morning I had a call for help because a heavy downpour, a veritable cloudburst of rain, was threatening one of our apiaries. Had I not received this hurry call, and dispatched men to this apiary eleven miles away immediately, I should have lost all the bees there. In the afternoon another call advised us of several colonies of bees swarming at another apiary. I went there immediately and hived them. With these telephone connections it is far easier to keep in touch with the bees and conditions at the various apiaries, though they be very much scattered, and at long distances from headquarters.

* * *

PROSPECTS IN TEXAS.

Beekeepers generally all over Texas are jubilant over the prospects for a honey harvest. Abundant rains during the last few weeks, and the opening of spring, have finally resulted in all kinds of vegetation making rapid rank growth and in great profusion. The bees are in excellent condition except in a few localities where they have run exceedingly short of stores. Some were "robbed" too closely last fall, and are handicapped by heavy brood-rearing that began very early this year on account of the mildness of the weather in the latter part of January and throughout most of February. Although much cold weather followed thereafter, particularly through March, when we had snow and ice, and some of the coldest weather of the winter, the bees did not suffer. The colonies were exceptionally strong; and with the large amount of brood, which has a tendency to keep the hives warm also, they came through the cold weather, and some of the colonies cast large swarms as soon as warmer weather came.

* * *

INVENTORS OF NEW HIVES.

It is all right for P. C. Chadwick to encourage would-be inventors of new hives, page 53, Jan. 15, provided they really invent something worth while. Otherwise I feel it actually a duty to discourage it. I have on my desk just now a long letter, accompanied by drawings and a patent, from another inventor of a new hive that, in the mind of the originator, will revolutionize beekeeping. To any beekeeper with the slightest experience and some idea about only the general requirements of a good hive, this new invention is but a complicated, impracticable clap-trap affair—even more so than the same kind of inventions of six persons I have received such correspondence from.

Far better it would be if we could dissuade these over-enthusiastic people from

spending a lot of hard-earned money on patents that cost much but which are worth but very little if anything at all. I have more faith in a gradual evolution in beehive improvement than in any radical changes; and I believe also that it is an admitted fact that beehive patents are not very popular with beekeepers of experience; and in spite of the scores of beehive patents that have followed the introduction of the Langstroth hive there has been very little hive improvement through the efforts made by their inventors.

* * *

ALMOST ABSOLUTE SWARM PREVENTION.

I have been exceedingly successful in swarm prevention upon every occasion when I was able to do the "stunt" at the proper time. This "knocking swarming in the head" has been described by me before; but I cannot help mentioning it again, as it continues to prove successful, in my hands at least.

To the experienced beekeeper it is well known, or should be, that swarm prevention ought to be begun by the beekeeper before the bees have the "swarming fever." I found, long ago, that after the desire to swarm has been allowed to come over a colony of bees, and conditions for swarming are favorable, it is exceedingly difficult to keep them from carrying out this desire. Consequently I begin operations for this purpose prior to the time swarming actually begins although I have had many satisfactory results from swarm-prevention manipulations, even at times when the bees had stolen a march.

Most of the readers will remember that nearly all of my bees are in divisible-brood-chamber hives. It will also be remembered that I have explained how we winter the colonies in three of these shallow stories, preparing an upper super with shallow extracting-combs partly filled with honey for additional winter stores. I have also mentioned the essentials of this additional super for breeding room in the spring, insuring more powerful colonies, and keeping the bees contented longer than with the old way of crowding them into a smaller brood-chamber. Besides furnishing the extra breeding room this super takes care of any honey not needed in the brood-chamber in the spring, and consequently prevents the clogged brood-nest and a crowded condition, so conducive to swarming.

The above-mentioned conditions already keep the colonies contented longer; but a congested condition of the brood-nest can prevail in even the most roomy hive. And I discovered, many years ago, that the mere addition of room above, below, or even all around such a congested brood-nest may not prevent swarming if conditions for swarming are at all favorable. It is absolutely necessary to break up this mass of brood in order to arrive at the desired results. It is for this reason that combs of brood are replaced in the brood-nest with empty ones or with frames filled with foundation and by various other methods. I aim at the same thing, but in a quicker manner and with less labor.

The manipulations consist of simply exchanging the two lower stories of the hive, placing the lower one on top of the second, which now rests on the bottom-board. Usually most of the brood of the colony is in the second or middle shallow story. The lower one is partly empty, especially in the lower part of the combs. Thus the most of the brood is switched to the bottom, and the empty comb of the former lowest story is now immediately above this, or right in the center of the brood-chamber where it ought to be. As there is nearly always some honey in the upper portion of the combs of the super, now on the bottom-board, and which is now in the center of the brood-nest, the bees soon move it and it is carried out throughout the honey season.

The super is replaced on top of the hive of all normal-sized colonies. It contains some brood and mostly honey unless the colonies have run short of stores, as they sometimes do when breeding heavily. If a colony is very strong, or in the event it is not long until the honey-flow may begin, another super, with the frames filled with full sheets of thin super foundation, is given underneath the shallow extracting-super, and the usual method of tiering up supers thus provides additional room.

If this manipulation is made shortly before the swarming season, and plenty of room provided after that, there is hardly any need of another exchange of the halves of the brood-chamber. This should be watched, however, and a second manipulation made if necessary. The work is carried out so quickly, especially if two work together, and the results obtained are so valuable, that it pays to do it. It hardly takes longer to make a complete operation of the entire hive, as described, than it takes to open up and remove one comb from the regular deep-frame hive when it is desired to exchange combs of brood for empty ones or for frames with foundation. According to my idea the brood-nests are left in a better condition after manipulations than in the deep hives cut up by the inserted combs or frames of foundation.

GENERAL CORRESPONDENCE

HOW TO TELL THE AGE OF LARVAE BY THEIR SIZE

BY G. M. DOOLITTLE

[Several times our attention has been called to the fact that very little has been given which would enable a beginner to tell much concerning the age of a queen larva by observing its size, in, say, a fraction of an inch from day to day; also the age when it straightens out in a cell, the age when it is capped over, etc. We feel that, of all our writers, Mr. Doolittle is perhaps the best qualified to take up a subject of this kind. If there are others who disagree with him we should like to hear from them.—ED.]

The mother queen lays the eggs for the queens, drones, and the multitude of workers which appear in any colony in the swarming season. From three to thirty eggs for queens (according to the race of bees and the prospects of the season) cover the colony's preparation for swarming. From a few hundred to as many thousand for drones (mainly in accord with the drone comb the home of the colony affords), and for from sixty to one hundred thousand workers, which are all provided by the one mother of the colony. So far as the unaided eye can detect, these eggs are just alike as to size, color, etc., an egg laid in a queen-cell, which is not far from ⅜ inch in diameter, being exactly the same as the one laid in a worker-cell which is only about 3-16 in diameter. The eggs for drones are just like the others, except that they are not fecundated. All of these eggs remain about three days in the egg form. Their length is not far from 1-16 inch, and their diameter about that of a fine cambric needle, or something like the period mark used in common printing. In fact, on a cloudy day it needs pretty good eyes to see these eggs, as they are attached to the bottom of the worker-cells; but with the comb in which they are laid held so that the sun can shine down to the bottom of the cells, they are quite plainly discerned, and very much admired by all who visit my apiary and see them attached and standing on end.

At the proper time, or about ten or fifteen minutes before the eggs should hatch, the nurse bees apply a little chyme, or what one writer calls "the milk of bees," to the eggs, when they soon go out of sight and a larva appears. Just what becomes of the "egg-shell" was a question I was always wishing more light on, but so far I am in darkness. A larva just hatched is even harder to discern than the egg, as it lies in a partially curved state floating on its milky food at the bottom of the cell. All I can think of as describing it would be a coarse spider-web, or a very fine hair, a little more than 1-16 inch long, and quite a little smaller at each end than at the middle. When twelve hours old this larva has assumed a crescent form, something like the new moon, and about the size the egg was from which it hatched. By shaving the cells down so they are only ⅛ inch deep, and holding them with the open ends so the sun will shine on the milky food, these larvæ can now be seen quite plainly, even to the motion of the mouth as they are feeding, for they are voracious eaters at all stages of their larval existence. I have many times used these twelve-hour-old larvæ for queen-rearing; but after many experiments I do not consider them any better than those 36 hours old. At this age the bees accept them, which they are not inclined to do nearly as readily as the older ones.

When 36 hours old the larvæ are still further "coiled up," something like a cat when preparing for sleep, and have attained a length of about 3/32 inch, their diameter in the largest place being about 1/32 inch. These are the larvæ which I always select, as nearly as may be, for transferring to the cell cups when rearing queens. From many experiments and much careful observation, such larvæ as these are the ones selected by any colony of bees during a copious flow of nectar, where the apiarist takes away the queen that the bees may rear others to take her place, or for his use in the apiary. At 48 hours the larva has reached a length of about ⅛ inch, and a diameter of about that of a coarse sewing-needle. If such larvæ are still floating on the milky food, good queens will result from their use, but otherwise they should be rejected. At 72 hours the larva has nearly doubled the size it was 24 hours before, and attained a length so that the extremities nearly or quite touch each other as it lies curled up in the bottom of the cell. A careful observation at this stage will reveal that, with the majority of colonies in a normal condition, very little chyme can be seen in the bottom of the cell, or surrounding the larva, which shows that they are being fed a coarser food so that they may become the working force of the colony rather than fully developing them for becoming a mother.

From now on to the sealing of their cell,

little if any food will be discovered in their "feed trough." But I note that our questioner asks about a queen larva. Up to about 60 hours old all larvæ are treated alike as to their food—that is, they have before them all they can possibly eat, all the while, and "enough is as good as a feast." The larva in a queen-cell floats on a "sea" of chyme. The larva in a worker-cell floats on a "lake" of this same milky food. But when they pass these hours, the "sea," with the larva intended for a queen, becomes an "ocean," while the "lake" of the larva intended for a worker becomes first a "pond," and then that dries up altogether, a coarser substitute taking its place. In other words, all fecundated eggs give queen larvæ to all intents and purposes up to the time such larvæ are 48 hours old, and the food given by the nurse bees thereafter decides their fate. A 96-hour-old larva can be changed over to a partly developed queen, which will become fertile and lay fertile eggs for from a few weeks to a few months; but these are small in size, and soon "play out" entirely. As a matter of existence, such a queen will carry along a colony so that, through her supersedure, the colony may go on to a fair prosperity again.

As regards the further development of the queen larva: It grows very rapidly from now on, and at the end of about 5½ days after hatching it is about one fourth larger and longer than is a worker larva when six days old. At this age both are sealed over, after which both commence to spin their cocoons preparatory to the pupa or nymph stage and the emerging of a perfected queen or worker; but there is this difference—the queen larva is fully developed in about seven days, while it takes twelve after sealing to perfect the worker, this time being somewhat lengthened or shortened by the temperature of the weather and the activity of the colony.

And now, Mr. Beginner, pardon just a word: If you wish to reach the full stature of an apiarist along all lines of our beloved pursuit, just take the time to go over the whole ground in this matter yourself. Get the A B C and X Y Z of Bee Culture spread out before you regarding this matter of "from the egg to the perfect bee," and prove by your own observation and experiments whether the writers of the past have found out all there is to be known on this subject.

Borodino, N. Y.

SWARM PREVENTION

BY J. E. HAND

G. M. Doolittle ingeniously likens the swarming impulse of bees to a broody hen. While agreeing that the similitude is perfect, I am not in sympathy with his method of eliminating the broody condition. A wide experience with poultry has taught me that a pullet of a good laying strain will seldom become broody during her first season, and an equally wide experience with bees has taught me that queens are less inclined to broodiness and voluntary supersedure (which is the direct cause of swarming) during their first season. While this trait in bee nature is not sufficiently developed to warrant depending upon ordinary methods of supersedure for swarm prevention, I have ascertained that a correct method of queen supersedure is the more safe and economical solution of the swarming problem. The question is, how shall we prevent swarming with the least expense for labor and equipment, the most important factors in the economics of honey production?

While the broody condition that usually culminates in swarming is shared by bees and queens alike, we have found that the remedy is more effective and much more economically applied to the queen with as little disturbance of the brood and bees as possible. These are excessive manipulations that multiply the cost of honey production. We learned a long time ago that destroying queen-cells to prevent swarming is equivalent to shooing a broody hen off the nest to prevent sitting, and that both are a waste of time and energy, for the broody hen will return to her nest, and the broody queen and bees to their queen-cells. Dropping the analogy relative to the hen, the question is, "What is the more economical and practical method of eliminating this natural condition of broodiness that usually results in swarming?

Shall we resort to the excessive manipulation of hives and combs, removing brood that will soon become bees, and peddling them promiscuously about the apiary, all of which excessive manipulations are involved in the shake-swarm method advocated by Mr. Doolittle? or shall we practice the equally laborious method of removing

queen-cells once a week, involving excessive labor in manipulating brood-chambers heavy with supers as advocated by R. F. Holtermann and others? or shall we practice dequeening with its deleterious effects upon the working qualities of bees, likewise involving excessive manipulation of brood-chambers heavy with supers, to detect signs of swarming? I repeat it, Shall we resort to the abnormal condition of queenlessness with its psychological depression upon the energies of bees, as advocated by Dr. Miller?

Is such excessive labor conducive to economical honey production, the desideratum of every method of beekeeping? Since swarming is a natural impulse, it is imperative to combat it with purely natural principles. Assuming that all preconstructed queen-cells are supersedure cells, the supposition is that their construction indicates a desire for a young queen. This supposition becomes an established fact when the correct method of requeening eliminates queen-cell construction with its attendant evil "swarming." Here is the method, requiring as much time to do it as to name it. "Remove the queen and insert a ripe queen-cell, removing cells while looking for the queen."

The story is told in sixteen words, and the operation is performed in as many minutes. If done with a strong colony at the beginning of clover harvest, swarming is prohibited by a combination of purely natural forces; and the desire for a young queen being satisfied, the colony will work with a vim and energy that denotes contentment and satisfaction—a psychological condition that cannot be maintained by combating nature by abnormal methods. I might deliver a long discourse explaining the philosophy of the principle, which might be only theorizing, hence I will only say, "Try it and be convinced."

Birmingham, Ohio.

INTRODUCING A QUEEN BY DEMORALIZATION

BY A. C. AMES

A great deal has been written concerning the introduction of queens; but yet little has been said in support of one of the best methods in use, and that is the introduction of a queen to one to three pounds of bees which have been placed in an unnatural condition. It is a well-known fact that when bees are in a demoralized condition one can do many things with them that cannot be done otherwise. This way of introduction may be varied to suit local conditions. The main point is to have the bees in an unnatural condition.

The plan I favor is as follows. Shake from one to three pounds of bees into an empty hive. The bottom of the hive should be fastened and the entrance stopped. To keep the bees from freely leaving this hive I usually wet the inside with water and leave about a quarter-inch of water in the bottom. Then, to make sure they are thoroughly demoralized, I put the cover on, bump the hive on the ground, and give them a good rough handling.

With the last bump I land all the bees in the bottom, lift the cover, and place several combs in the hive, the number of combs depending on the amount of bees used. I now either run the queen in the entrance or just throw her in among the bees in the bottom of the hive. These bees are now either carried to an outyard and released, or, if to be kept in the yard that the bees came from, they are confined for two or three days.

It may look as if this is a whole lot of work. It is more work than some other methods, but the results are sure—at least that is my experience. As a way of making increase after the main flow, it is excellent. At that time there is always a lot of bees which can well be spared for this purpose.

When I wish to replace a poor queen I usually try this method. After the queen has started to lay I take brood from the queen I am going to discard, and with the help of the two queens it is possible to build the new colony to good strength very quickly.

Keep the poor queen at work until all her hive makes a good place to go to get a frame of brood when one is wanted, or her stock can be used for further increase. At the end of the season the remnant of her colony can be used to strengthen some weak colony for winter. In this way one gets the full benefit of a queen which is going to be discarded. Where one has several of these queens in a yard their brood is a big help in making increase or keeping the yard in first-class condition for strength.

Peninsula, Ohio.



Sixty colonies in the mountains near Hanford, California.

SITTING TIGHT FOR BETTER PRICES

BY M. J. SAIN

We have fine prospects for a good crop here this year, and splendid prospects of having to keep on storing away our honey for future use. Just as long as we have free trade, I suppose we producers of honey, as well as the olive-oil producers and a few others, will have to use lots of grit, and hold on until a change comes. I shall be one who will hang on. I can keep storing it away as long as I can sell enough here and there to buy the lumber to make room for it.

My bees are in fine condition this spring —the best I have ever had them. I expect to run for comb honey in the sage flow this year, which will be my first attempt at this to any extent.

My apiary in the mountains consists of sixty colonies in ten-frame Langstroth hives. They produced eight tons of honey, but no increase to amount to anything since the honey-flow came on unevenly. One day we would enjoy a good flow, and the next almost nothing. I believe this was due to the windy weather.

Hanford, Cal.

HONEY EXHIBIT AT THE MINNESOTA STATE FAIR

BY P. J. DOLL

Minnesota people are naturally proud of their State Fair, which is always held the first week in September. The grounds, covering 265 acres, are located midway between Minneapolis and St. Paul. The combined population of these two cities is over 600,000. Nearly 400,000 visitors attend the State Fair every year.

These people are a patriotic and unselfish lot. They enjoy prosperity in a state of boundless possibilities, and wish others to enjoy the same blessings, so once a year they get together and show to each other and to the outside world what they have been doing the past year and invite others to come and share with them the bounties Nature has lavished on their state.

It would take a large volume to tell of the different exhibits at the fair, so in this short article I shall confine myself to the honey exhibits alone. The Minnesota Beekeepers' Association, working with the fair management for a number of years, has built up the honey exhibit from year to year until now we probably have the largest and finest display of honey ever made.

The Apiary Building, used exclusively for the display of honey, wax, bees, and



M. J. Sain's apiary in a young apricot orchard.

bee-appliances, is 144 feet long by 70 feet wide. More than $700 is appropriated for the maintenance of this building. Besides, there is appropriated $1168 for premiums on honey, wax, and bees, making a total of nearly $1900 annually devoted to the encouragement of beekeeping.

The premium honey is all displayed in fourteen glass cases arranged around one side and both ends of the building, about five feet from the wall, so visitors can go all around each and every case to inspect the display, and also so all the honey is visible at one glance inside of the building. In the center, against the other side wall, is conducted a demonstration of extracting honey.

In 1913 this extracting demonstration was one of the big sensations of the fair, when Francis Jager, now professor of bee culture at the University of Minnesota, brought 12,000 pounds of honey to the Minnesota State Fair in nice, clean, white extracting-frames, just as the bees made it, in well-painted, well-constructed supers. This honey was uncapped, extracted, bottled, and labeled during the fair week, for the entertainment and instruction of the public.

A speaker on the platform explained how the bees gather honey, pollen, and propolis; how bees make wax; the difference between comb and extracted honey, and explained in detail the workings of the extractor, which was kept running all the time. Two men were uncapping honey with steam and electric heated knives over a Peterson capping-melter. Another man managed the four-frame power-driven extractor and pump which emptied the honey into two one-hundred-gallon storage tanks.

Above the bottling-table was a honey-heater which could be regulated to heat the honey to any desired temperature before putting it into bottles. Two girls were busy draining the honey into quart, pint, and small bottles. Two more girls at a counter near by were giving free samples of honey on triskets to the public. In this way 57,000 helpings of honey were passed out during the week, and about 15 gallons of honey were used up.

People crowded around the place all the time. The daily papers of St. Paul and Minneapolis had write-ups about this demonstration every day for ten days. It certainly pays to advertise, especially when the advertising doesn't cost anything, and we did not pay the newspapers one cent in money; but we did occasionally slip a bottle of honey to some of our good friends who helped our cause. I am convinced that a small bottle of honey well placed will do more good than a ten-dollar note.

This demonstration alone cost the fair management about $500. They insist that we must have it again, and this year we are planning on extracting 30,000 pounds of honey, using all the different kinds of extractors, wax-melters, and implements used by up-to-date beekeepers. We also will try to work up some kind of contest to show

which kind of extractor or capping-melter is best adapted to the needs of different classes of beekeepers.

On the same side of the building with the demonstration of extracting honey were the displays of three different bee-supply dealers who are allowed space for display of their goods at a very small charge. On the same side, also, was a glass observation hive with both sides of all eight frames exposed to view, covered with live bees which had free access to outdoors through a hole in the wall. Right near this were specimens of Minnesota honey-bearing plants, pressed and dried, and put into individual frames, with its name below each plant.

In front of the main entrance to the Apiary Building there is a little park in the shape of a triangle with a nice well-kept lawn trimmed with flowers. In the center of this spot there was an octagon-shaped screen cage, about eight feet in diameter, in which there was a sort of vaudeville performance with live bees. This proved very interesting to the public, and attracted people on all sides, who, after being entertained with the live bees outdoors, would be induced to go inside and see the other attractions inside of the building. Our main trouble was that our building was too small to accommodate the crowd who wanted to get in.

Around different parts of the fairgrounds we had twenty-two colonies of live bees flying at will right among the people. Strange as it may seem to many beekeepers, nobody seemed to be afraid of the bees. Little children were playing in front of the hive entrances, letting the bees crawl over their hands, and thinking it great fun. I did not hear of anybody getting stung, and I was around every day and all the time.

I don't believe there is a better way to advertise honey. No doubt it was worth thousands of dollars, and it didn't cost the beekeepers one cent. Beekeepers ought to take more interest in their State Fair exhibits. That is where people come to look and learn. They are not in a hurry; and if you will present something interesting there is no trouble in getting an audience all the time. If beekeepers will all help to advertise honey this way, there will be such a demand for honey that the price will be considerably advanced.

It is estimated by conservative people that Minnesota now produces about 2,000,000 pounds of honey annually. Most of this is consumed by the farmer beekeepers and their neighbors. Less than half finds its way to the cities. Less than 500,000 pounds of this comes to Minneapolis and St. Paul —not enough to give everybody in these two cities a pound each during the year.

Beekeepers talk about overstocking the market with honey. No doubt the public is willing to buy all the honey we can produce, even if it were fifty times as much, which would be only enough to give everybody a pound a week. It is true that in this city there is sold three and four times as much western honey as there is Minnesota honey; but I believe the market in all parts of the United States could be developed to consume all the honey we are able to produce.

Minneapolis, Minn.

BEES AND BERRIES; BEES TROUBLESOME AT STRAWBERRY-PICKING TIME

BY JEAN WHITE

There seems to be quite a difference of opinion as to whether bees damage fruit or not. I keep bees and raise small fruit, and I am quite sure that I should not care to raise some kinds of fruit in the vicinity of a large apiary. A small beeyard and a small-fruit plot would show practically the same results. The bees do not harm the fruit until it becomes fully ripe and sweet. At this stage they are able to suck the juice from the berry, and do so. My strawberries, red, black, and purple raspberries, all showed this plainly. Every fruit that was overripe was sucked as dry as if evaporated for market. In picking, it required the utmost care to avoid picking a bee, as some berries would have two, three, and sometimes four bees upon it. As I raised fruit before raising bees I noted the dry berries quickly, never having seen any until the bees worked upon them.

I am of the decided opinion, notwithstanding the so-called proof that bees do not puncture fruit, that in the case of thin-skinned fruits of considerable sweetness when ripe, they do break the skin to get the fruit sugar. Bees that can and will eat a way through a paper or cloth placed between them and liberty, or between them and honey or some substance that they particularly desire to get at, can, if they so desire, easily puncture the skin of the ordinary raspberry. Birds may and do break a good many; but as the raspberry or black-

berry is a collection of tiny separate parts, not all of them would be broken; yet the raspberry in a short time is sucked perfectly dry of juice. My bees did not work extensively on the strawberries or blackberries, although they did some work there; but the red raspberries they were as crazy for as they would be for a lump of sugar. Raspberries cannot be picked very unripe, as they adhere to the core, and crumble if forcibly removed. If picked closely every day I do not think the bees would injure many; but in picking for home use, or for markets near by, I feel sure the bees would take their toll quite freely. They did of my home berries picked every other day, but left till fully ripe, as otherwise they are sour and not of as good flavor as when sweet and ripe. I firmly believe they puncture the thin delicate skin themselves, or it may be that it is so thin that they suck the juice through it.

Bees were not nearly so plentiful among the fruit-bloom in the spring as in the later season among the fruit. For home use this was not particularly annoying; but I can well believe that in commercial fields they might do a good deal of damage. As I preferred bees to berries I was not distressed; but I can see that the fruit-man might not feel just that way about it. As larger fruits are usually picked for market before fully ripe they very likely would not prove very troublesome; but with small fruit sold near at home, and not picked until ripe, I am quite sure bees would prove a nuisance.

Bees are supposed to fertilize cucumbers. Our cucumber-beds were within a few rods of the bees this season. They did not produce as well as they should. I hardly ever saw a bee near them. Whether this was because of better feeding-ground near at hand, or because the large leaves from the vines hid the blossoms completely, I do not know; but the bees did not visit the cucumbers as freely as I should have expected them to.

Glover, Vt.

[It is a well-known fact that bees will work on overripe fruit, and they are often troublesome in this way, especially at fruit-picking time. It has been definitely proven, however, that bees cannot puncture the skin of the fruit. It must be punctured by some other insect, by a bird, or, as sometimes happens, by bursting due to the overripe condition. Now, then, the question is whether such fruit as is punctured by birds or insects, or burst because of being overripe, is of any value, commercially speaking. Such fruit will always rot almost immediately, and the contention of the beekeeper has always been that the bees in sucking the juice from such really unmarketable fruit is no loss, for the fruit then dries up and the rot is not communicated to other fruit close by. This is especially true in case of grapes, and should also be true, we think, in the case of strawberries.

Bees are used so extensively for pollinating cucumber-blossoms that we feel sure there were other flowers more attractive to the bees in blossom at the same time.—Ed.]

VALUE OF BEES IN STRAWBERRY CULTURE

BY L. T. FLOYD

Some time ago while traveling I chanced to mention to some people whom I met that we had received one thousand dollars for the crop of strawberrries we had grown on an acre on our farm at Central Norton. From them the story found its way into the local paper, and since then we have received many inquiries about it; and as the subject seemed to be of interest to so many I want to state one of the reasons for our getting this crop in a year when berries were generally a failure.

We had a fairly good stand of plants on this patch the season before. They wintered fairly well, but the spring was backward and cold. They began to bloom about June 1. On the night of June 4 we had a heavy frost which killed all the blossoms down to the smallest buds. We thought our crop was doomed, because we remembered a season about seven years before when a lighter frost ruined our crop. This was before we began keeping bees.

The evening after the frost it rained—a good soaking rain. This caused the plants to set more fruit-buds. Out of the crowns where one or two fruit-stems had been before, there sprang many more; and in about ten days the patch was white with blossoms again. Near this patch we had fourteen colonies of bees, and at this time of year the hives were brimming full, and every fine day while the plants were in bloom one could hear their busy hum quite a distance from the patch.

The spring being so cold, there were very few wild bees or other insects, and so we had to depend solely on our own bees for

the fertilization of these blossoms. They made a good job of it.

How do we know? Because, as the season drew near its close, every blossom that had not been frosted grew a berry. There were none of the small hard knots often seen toward the close of the harvest.

How much do you think those bees were worth to us on that crop of berries? We place it at hundreds of dollars, but this is only an estimate.

One thing we are sure of, and that is that it pays well to have a good crop of berries in a year when they are scarce, and high in price. We know the bees were largely responsible for this.

We had more than half these berries picked before it began to dawn on us that we were going to have a crop. We had been sure the frost had fixed them. The sooner that fruit-growers find out the benefit that our little friends are to them, the sooner they will catch the dollars that are slipping through their fingers because of imperfect pollination. The profits in bee-keeping are not all to be counted in the number of pounds of honey harvested.

Central Norton, N. B., Canada.

BUSY BEES OF BELGIUM

BY JAMES B. PAIGE

In describing the country traversed by the railroad between Liege, Belgium, and Aix-la-Chapelle, Germany, Baedeker in his "Guide-book of Belgium and Holland" says: "The country traversed by the line between Liege and the Prussian frontier is remarkable for its picturesque scenery, busy manufactories, and pretty country houses, while the engineering skill displayed in the construction of the line is another object of interest. The picturesque stream which the line crosses so frequently is the Vesdre, and pleasant glimpses of its wooded banks are obtained on both sides of the train. This is the most beautiful part of the journey between England and Germany, and should if possible be performed by daylight."



Jos. Crutzen's apiary, Quatre Chemins, Henri Chapelle, Belgium.

Having had the pleasure during the past summer of making the journey in the reverse order given by Baedeker, that is, from Aix-la-Chapelle to Liege, by automobile, over an excellent macadam road that followed the railroad and river the greater part of the distance of 38.9 miles, as registered by the speedometer, the writer is in position to state that the author of the guide-book has in no particular exaggerated in his description of the beauties of the country.

At Tulgie, 5.7 miles

from Aix-la-Chapelle, one traveling by automobile goes through the ordeal of a custom-house inspection. This concluded and the journey resumed, he arrives at the first town in Belgium, Henri-Chapelle, where the well-tilled farms, large herds of cattle, capacious barns, and neat and comfortable houses, surrounded by flower and vegetable gardens, testify to the industry and thrift of the Belgian farmer and his family.

In a limestone section one naturally expects to find an abundance of white clover and other nectar-producing plants. In this respect the valley of the Vesdre is no exception to the rule, for white clover grows everywhere in profusion.

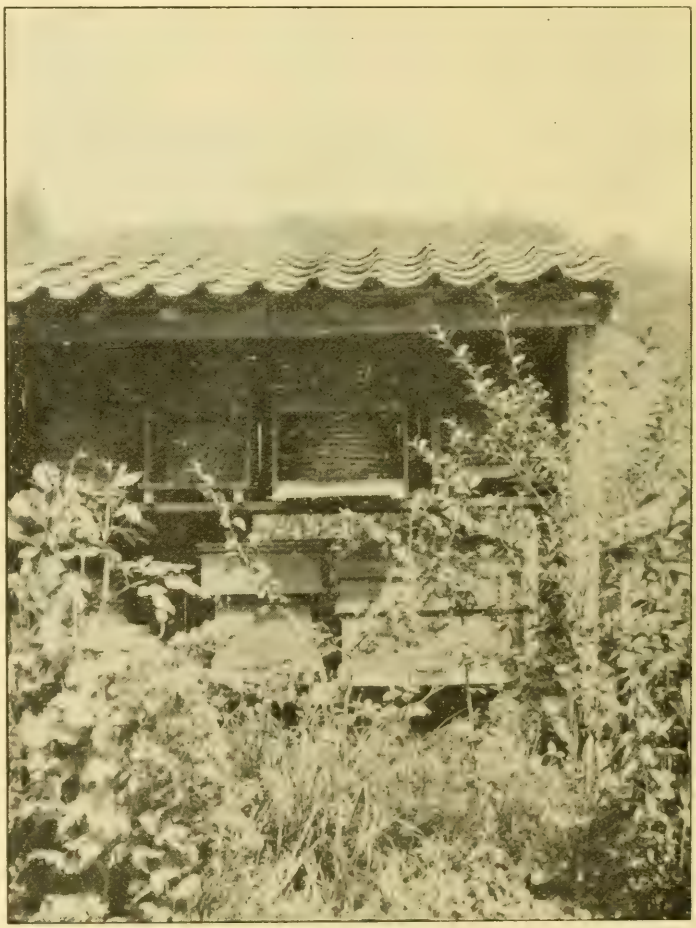
Under such conditions an apiary constitutes a valuable asset to the equipment of a farmer, more especially a Belgian farmer, whose areas for cultivation are relatively small, and who must, of necessity, practice an intensive system of agriculture.

The accompanying picture of the twelve-colony apiary and the tile-covered beehouse of Jos. Crutzen, at Quatre Chemins (four corners), Henri-Chapelle,gives a good idea of the farmer's apiary of Belgium. The orderly arrangement and spacing of the hives, the presence of supers, with numbers to correspond with those on the hive-bodies, and the neat surroundings all indicate that attention and care are given to this secondary industry on this particular farm.

I think it is a safe prediction that the care of the bees devolves upon the good wife of Mr. Crutzen. Certainly she evinced particular interest in the picture-taking, and was so good as to write her husband's name and address in my journal.

Between Verviers, noted for its cloth-manufacturing, and Liege, famous for the fortifications that stayed the progress of the German army in its recent invasion of Belgium, is the small town of Trooz. The route at this point is especially picturesque. The river, road, and railroad run close together in the deep valley. Near the railroad station, where we ate our luncheon on July 1, was a well-kept flower and vegetable garden which contained a small apiary belonging to an artisan who lived in a modest cottage on the slope of the hill across the highway. One might infer from the surroundings that the owner derived a large amount of pleasure and some income from his few hives of bees.

The skeps above, the box hives below, the red-tiled roof on the beehouse, the bloom of flowers, and the merry hum of the bees, produced in one, upon the spot, a sense of pleasure that description and the black and white of the photograph cannot convey.



Apiary at Trooz, Belgium.

A ride of six miles from Trooz brought us to Liege, where we remained for the night. Here we found great excitement and activity. All through the night the streets were thronged with excited people. At daybreak troops were marching through the streets; people were congregating in crowds outside the banks to obtain their money; horses were taken by the military authorities from the carts in the streets, to be led to the nearest blacksmith shop to be shod for immediate service, and automobiles were commandeered for military use. Belgian paper money was refused at places of business, and American Express checks shared a like fate at the hotels. Having learned that the Belgian Government had issued an order that no motor vehicles should leave the country, our party was particularly anxious to save its means of transportation. After a hurried conference it was decided that a start should be made for the nearest point on the Dutch frontier in hopes that the customs official might not have received the recently issued order, and that we might succeed in getting the automobile into a country more neutral than Belgium had the appearance of being. Our run of 16.7 miles, on the morning of Aug. 1, through Visé, landed our party, baggage and car, across the border, and we congratulated ourselves that we had planned and executed well.

As I write this article I naturally recall to mind the surroundings of the orderly and well-kept apiary of Jos. Crutzen at the "four roads" of Henri-Chapelle, and that of the artisan of Trooz, and wonder whether they are still there as they were July 31, 1914, or have shared the fate of Louvain, Malines, and Tremonde.

Amherst, Mass.

A CROP OF EXQUISITE ORANGE HONEY IN FLORIDA

BY EDWIN G. BALDWIN

The orange season this year has been the most erratic that I have noted in ten years. In the first place, the bloom was very heavy. But the cold and inclement weather kept bloom back, so that it did not open evenly, and as a result it not only began late, about the first of March, slightly, but also did not yield well till end of March, and even then was very uneven. For instance, a hive on scales, here at Deland, showed only a pound or two gain for three weeks in March, and on one or two occasions it lost steadily for three or more days, owing to cold weather. We even had a slight frost on two occasions in early blooming time, while some of the bloom was out on the trees. But about the last week in March weather began to improve, and, for a wonder, the bloom held out and yielded abundantly; in fact, it has lasted till now, the 20th of April, and today the hive showed a gain of three pounds. That shows that the flow is easing off, and will be gone entirely in a few days. I can now form a pretty good estimate of the flow and of the orange season. It will be, for this locality, about half a crop, I think —perhaps more, owing to local conditions and management, condition of bees at beginning of flow, etc.; but for an average I think about fifty per cent of last year will be about right. Recall that last year was a bumper crop. My best hive this year will give about 150 lbs. as against 200 for the best hive last year. The average will not be so nearly on a par with last year, however. I find more unevenness in hives this season. The cold weather gave powerful colonies—colonies powerful early—a decided advantage that they would not have had if the season had been normal in temperature. Not long ago I remarked, in the *Review*, on the much later time of flow from orange, in California, for there April is their big month for the yield. Here I have never before seen orange yield later than April 10. This year fully one-half of our honey came in *after* the 10th! How is that for a record of ten years' comparison? Surely we never know what is in store for us. Those who had their dish right side up got a good crop—more than an average crop, perhaps, take it one year with another. Of course it is not fair to compare altogether with last year, which was very extraordinary.

One thing more I wish to note. The flow this year would fluctuate in quantity, even on days when bees seemed equally busy, more than I have ever before noted. For example, on one day the scales would show a gain of 11½ lbs. (my best one-day yield this year), and the next day it would drop to four or five; then seven, then eleven, then four, etc. I never saw it like that before, and I admit it kept me guessing. Some days I could about judge the cause. For instance, one day it might be very hot and dry, and a hot dry day shortens the flow for that particular day, because nectar dries up readily in an orange-blossom when the air

is dry. Again, when weather would be lower in temperature on any particular day I could usually note a slight drop in amount stored, though even cold weather, after bees got well into supers, did not always lower daily records, for on several cool days when I predicted a slight gain I would be surprised to note a decidedly heavy gain; but as a rule the yields kept near the temperatures. And cross? ugh! I think I have never seen bees so frantic. It seemed to them that the flow was going to stop any moment; and all readers of GLEANINGS know what a failing flow means to the tempers of the bees. Well, this whole season it has been dangerous to go near the apiary unprotected. Did I not have a hive on scales right through the flow I might be at a loss to know the reason for this show of temper; but as it is, I can judge pretty nearly the cause, I think; for, as I said, the flow was most erratic, and so were the bees!

I have just at hand a letter from friend Galyean, of Plant City, about 100 miles further south than Deland. He says that the flow there did not begin till about April 1, and that it lasted but ten days for them there. He adds, "Orange will not probably average more than 10 lbs. per colony. I predict the poorest year since 1904 for our county" (he is speaking of Hillsboro Co., just north of Manatee).

But there is no loss without some gain; for the quality this year is the *best* I have ever seen, or, rather, tasted, or both. It is exquisite, with the emphasis on the "ex."

Deland, Fla.

A COLONY OF TWOSCORE YEARS

BY STEEN FREEMAN

This hive and colony of bees have been doing business right here for over 40 years. I do not know just how old it is, for my father purchased four colonies, and this is the only one left. It is a movable-frame hive, but the combs are so built that the frames cannot be taken out.

I have rigged it up so it takes the regular Ideal super, and I think I get an average of 20 lbs. from this old colony. The hive stands in the center of an old apiary of thirty eight-frame hives, and I expect to preserve it as long as I can.

Wamsley, Ohio.



Hive and colony forty years old.

A WINTER LOSS OF 25 PER CENT; CAUSES OF WINTER LOSSES

BY R. F. HOLTERMANN

During the last week or so I have been through the greater part of our bees, and have reports from my season's help from the rest. There is a loss of at least 25 per cent of the colonies of bees, and quite an undesirable percentage of weak colonies among those left.

Last fall in an article contributed to GLEANINGS I stated that I could not see my way with absolutely no bee pasture and upward of 800 colonies of bees to extract from the brood-chamber, the honey mixed with honey-dew. Next with the war coming on, and the difficulty of many to get hold of

what little money they had a right to, and the increasing difficulty of selling honey in our Canadian west, and some three thousand dollars' worth being left unsold for two seasons, I did not feel inclined to feed sugar syrup very heavily, running chances on the bees having a cleansing flight during the winter, and watching them for stores early. The season was very open until Dec. 1, causing the bees to consume an unusual amount of stores during the late autumn, and of them the sugar syrup went first.

I find the cause of winter loss as follows, naming the causes in the order of importance.

Dysentery—from the honey-dew in the winter food.

Starvation—owing to open fall and increased activity caused by bad stores.

Chilling—owing to the poor season and absolutely no late summer and autumn gathering by the bees, small clusters of bees perished, some starving to death, when in another part of the hive there was abundance of honey.

Queenlessness.—Having a large number of colonies, we do not examine them in the fall for queens, and a percentage are queenless, undiscovered by us until we find the pollen-clogged combs in the hive the following spring.

At some point in our feeding, a mistake was made in the water and sugar measurements, which gave us a much thinner syrup, and, of necessity, less ripe stores for the bees. There was no way of telling how far this extended, and the only remedy lay in giving more to feeding all that had been fed, more, which I did not feel like undertaking.

If bees had wintered well, and a good honey crop had been obtained, I do not know what we should have done with our honey. Providence sometimes steps in when experts do not know when to quit booming the bee business.

Brantford, Canada.

EXPLOITS OF AN AMATEUR BEE-HUNTER

BY H. P. KIRBY

One of the most fascinating outdoor sports, if one would deem it a sport, is bee-hunting. An ideal time to begin the hunt is some bright sunshiny morning, just before fruit-bloom, when there is not much nectar and pollen for the bees to gather.

First you will need a bottle of honey and a bottle of vinegar to dilute the honey. You will need something to feed the bees from. Take an old chalk-box and put a glass slide in the place of the wooden lid. At one end place a small trough or lid to hold your honey, and bore a one-inch auger-hole at the other end in the bottom to let the bees in. A handy arrangement by which to catch the bees for the box is composed of two funnels made of wire cloth. Slip one into the other, so as to make it like a fish-net funnel, and close the small end.

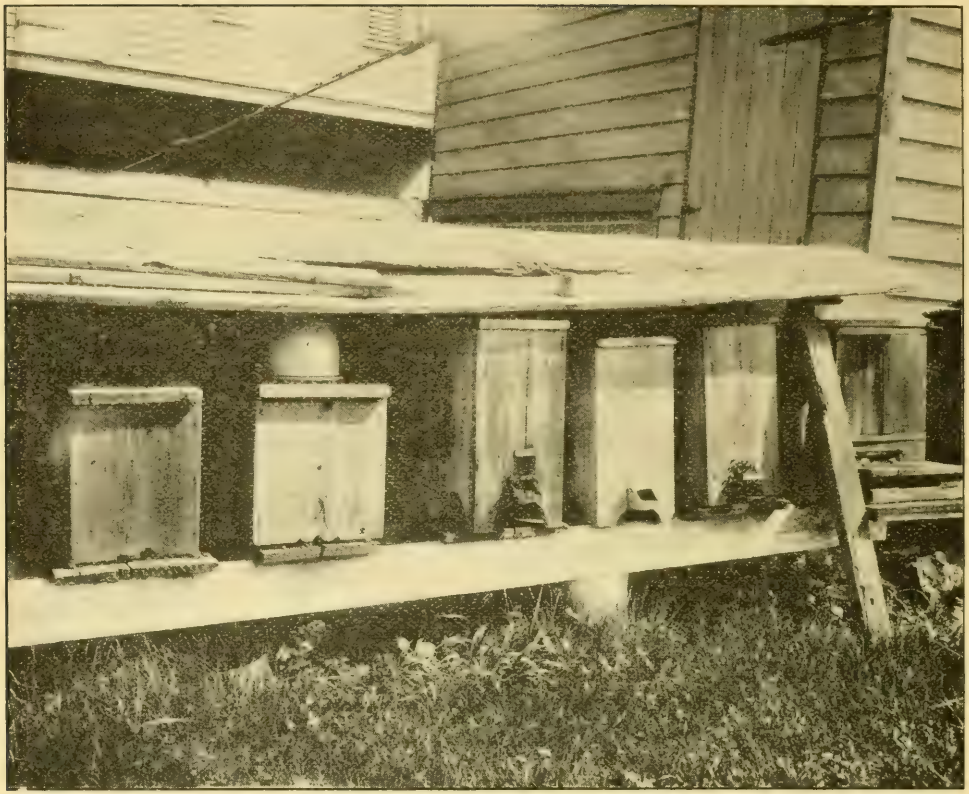
You are now ready to go after them. Find some bees watering at some spring. Some on flowers will do; but if you can find some watering you can conclude that they are close by. Catch several bees in your trap. Then take them out in an open place close by and put them in your box through the auger-hole by opening the end of your catcher and thrusting it up into the hole. If they do not go up at once, darken the lower portion and then they will go up. Then darken your box by putting a cloth over it and place it in an elevated position. Wait about three minutes for the bees to fill up. After this time has elapsed remove your cloth and slide your glass cover out. At first they will fly around and around till they get their bearings. Then they will go in a straight line to their home.

After you get their line, and plenty of bees are coming to your bait, close the box with the bees in it. Move on in the course which the bees followed. Repeat this several times, all the time keeping watch for their den in the trees. If you will place yourself in a position so that the sun will be on the opposite side of the tree you can see them very easily as they fly back and forth.

My friend and I often hunt bees, and have never failed to locate them where we found them watering. If you don't find them the first time, keep trying and finally you will succeed.

We found where bees were watering at a mountain spring about one and a half miles from home, so one bright morning we took our outfit and went after them. After we reached the place we followed the plan I have related and soon found two trees inhabited by bees. One was about a quarter of a mile from the spring, and the other about a half.

When we were ready to cut the trees the



Box hives the menace of modern beekeeping.

roads were very rough, so we just packed our things and carried them. We made two small hives, two stories high, out of half-inch lumber. Each super held four frames 5⅝ inches in width, making eight frames to the hive. The bottom was nailed on, and the supers stapled together. When the weather is very warm we use a wire screen tacked on the top to give the bees plenty of air. It is very handy to have a rope to fasten around the hive at both ends; then you can swing it over the shoulder, and that makes it very easy to carry. We took knives, saws, and other tools for transferring the combs to the frames. It takes several hours to cut the tree and to transfer the combs and bees.

After bees get accustomed to their civilized life one can remove the frames from the small hive and put them in the regular ten-frame supers.

Scottsboro, Ala.

A MEDIEVAL BOX-HIVE APIARY

BY CHARLES Y. HAKE

This picture represents an old apiary started in 1879. The shed complete, and all but the two hives in the center, date from this time. Some of them were almost too fragile to move, and required two men to handle on account of their weight in stored honey. Where these hives came apart through age, and left large openings, some of them an inch and a half in length, the bees had them tightly closed up with glue. The hive at the extreme left, beyond the posts of the shed, was constructed on the leaf plan. The others all have crossed sticks to hold up the brood-combs, with crocks and common boxes for supers. The bees passed through a hole about 2½ inches in diameter in the top of the hive up into the super which was set over the hole.

York, Pa.

AUTOMATIC STIMULATIVE FEEDING

BY E. F. ATWATER

I have never been satisfied that the practice of regular frequent feeding for stimulating brood-rearing before the honey-flow is always or often profitable. However, there have been short periods when it has been highly profitable.

For most spring seasons, probably most localities furnish sufficient pollen and enough bright warm days to secure as much brood as the bees can cover and protect.

The bees of Italian blood require rather more encouragement than those of some other races in order to produce a big field force in time for an early flow. In this locality we usually secure the best results by wintering the bees in two-story hives. The upper story contains the old brood-nest, while the lower story is an extracting-super containing two to four combs partly full of honey, the remainder being empty combs.

The bees clustering in the upper story are well away from any direct drafts of cold air that may be driven into the entrance by cold winter or spring winds. During the fall, after the flow, the bees busy themselves on warm days, carrying up any unsealed honey into the combs above, where it is arranged to their liking, this activity favoring brood-rearing perhaps a little later than usual.

Then if several warm days come at any time during the winter or early spring, the bees uncap and carry up more honey, resulting in early brood-rearing. The chief benefit is in the spring, when brood-rearing is well under way and the honey in the lower body is constantly being carried above, where it may be better protected and used. If possible, it is very good practice to take heavy combs of honey from the brood-nest at this time, and put them below, giving the queen an abundance of room in empty combs in the upper story, and furnishing more honey, far from the cluster, when the bees will busy themselves again to carry it above, all of which activity promotes brood-rearing to the utmost.

So successful has been this practice that we have felt no need of any regular feeding save in rare cases, for this plan as given above promotes activity within the hive, and with but one or two manipulations of each colony it produces as large and productive colonies as we have ever seen produced by regular feeding, and with far less labor. Even in localities where, for various reasons, the beekeeper may prefer to winter in single bodies, the above practice may be made highly profitable in the spring by taking the combs of honey from the brood-nest and putting them into a body which is to be put below the regular brood-nest. In all cases it may be advisable, especially for the beginner, to contract the entrance, so that the bees may easily repel robbers.

The well-known disposition of the bees to rear their brood near the entrance while storing their honey in the more remote parts of the hive may perhaps explain the splendid results secured by this method of automatic stimulating, as the bees wish to move the honey to the more secure position. Perhaps those using a deep bottom-board like that of Dr. C. C. Miller may secure good results by taking a comb of honey from the brood-nest and laying it on a few sticks, in the deep space of the bottom-board; but the use of a hive-body is better, as several combs of honey may be taken from the brood-nest at one time and put below. The removal of most of the honey from the brood-nest gives the bees room for more brood in a single body, where it is more compact and easily cared for during cool nights, while it is not so soon necessary for the bees to begin rearing brood in another body, with the ever-present difficulty in crossing over into another body, over about 1½ inches of top-bar, bottom-bar, and bee-space.

Meridian, Idaho.

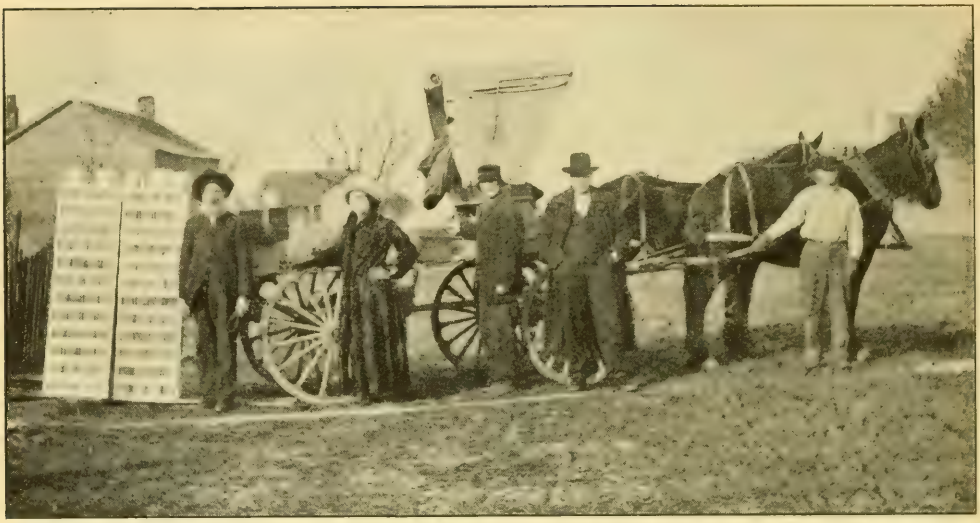
A BUSINESS POLICY IN THE APIARY

BY JOHN W. LOVE

Not long ago, in response to a request for settlement of an account, a beekeeper promised to pay part of his bill as soon as he disposed of some trees for the sale of which he was acting as agent.

Why should he have to wait until he had sold his trees before he paid his bills? Was his bee business so unprofitable that he had to sink into it the income from other lines of work? Or was he not allowing other lines of business to depend upon his bees not only for capital but for running expenses as well?

This is too commonly the situation with



650 lbs. of honey, W. E. Allen's December delivery. Mr. Allen, who stands beside the honey, secured 4350 lbs. from 75 colonies, spring count, increasing to 100. This was the largest yield recorded for the vicinity of New Haven, Ill. The buckets filled with comb honey accommodate travelers he meets on the road.

men who are engaged in the bee business along with other lines of work. They know they make a living, but cannot estimate the profit they receive from bees nor tell whether keeping bees pays them at all.

The farmer who has bees or the beekeeper who raises poultry should keep his accounts in such a manner that he will know whether his bees are making him a profit or a loss. If a loss, the business should be disposed of. If a profit, the business should be provided with what capital it needs, and an amount set aside for operating expenses and kept solely for the apiary.

There is this danger in engaging in two kinds of work, such as poultry-raising and beekeeping, that the owner may never learn that he is losing money in one of his lines. He may be sinking a dollar a day in his poultry, and making three a day from his bees, and conclude at the end of several years that both bees and poultry are unprofitable because neither, to his view, can make him a living by itself. On the other hand, had he known the situation he could have been deriving a comfortable living from a delightful pursuit.

A farmer gets seven cents a pound for his hogs. He thinks he is making a lot of money. Where did his feed come from? Oh! he raised that right on the farm. But raising it took labor. Now, labor costs, whether that of the farmer or the hired man. The same farmer will realize how foolish it is to maintain perambulatory corn-cribs and dispose of them for a fraction of what he has put into them. If he were raising hogs and nothing else, and either buying his feed or growing what he needed, he could easily tell just how much he is making out of the business, after deducting a fair price for his own labor.

The considerations are the same with practical apiculture. The beeman can as well afford to pour sugar syrup all winter into a lot of backlot buzzers without getting any honey as to throw it into the drain. After several years of the business, if he finds he is making nothing more than wages, he might better sell the outfit to some one else, and then hire out to him as an assistant. He would be relieving himself of a lot of worry, and have his investment free for something else.

But how is the beekeeper to know whether his bee-poultry or bee-fruit or bee-farming combination is profitable, or whether his bee business alone pays anything more than wages? He can determine this only by keeping a set of accounts for his bees alone. He must carefully record every expenditure for hives or supplies and every cent he receives from a sale. He should rate his own labor at, say, twenty cents an hour if he is an amateur, and more if an expert. Then at the end of the year he will be in a position to know just how his bee business stands.

After the expenditures and labor account are deducted, if the figures show a large profit he will be wise in increasing the number of his colonies and the extent of

his operations. The point at which to stop increasing will again be shown by his figures if he has kept his accounts carefully.

Such a set of books ought to show whether the beekeeper is making any return on the capital invested. Of course, where he has only one or two hundred dollars in bees and equipment, a normal profit on the investment would not be more than a week's wages, but still an accurate set of books ought to show it. Particularly where a man is keeping bees on his own land, he is liable to forget that there is due him besides his wages something which he can call rent. He would receive rent if he let some one else use it. So rent as well as labor and some return on the equipment ought to be looked for in the final balance.

Many a beekeeper never realizes he is not making money until he finds himself short of cash. He becomes disgusted, when perhaps at that very moment his profits are good. He is short simply because he has been running for increase or buying hives and machinery. On the other hand he may find himself with more cash than he ever had before, and pat himself on the back for his ability in the bee business. At the same time effective accounting would reveal that the outlay for new but necessary equipment will take more than he has on hand.

To go back to fundamentals, present-day competition in all lines is driving out the inefficient. The beeman with modern business methods will crowd on to the shelf his inefficient competitor. To keep his business from falling into the hands of the large commercial apiaries, the individual must be economical in his operations. Accounting is the soul of economy.

BLACKS VS. ITALIANS

BY W. C. MOLLETT

A few years ago I wrote something about the difference in the honey-gathering, hardiness, and other qualities of the common brown or black bees as compared with the Italians. On page 175 I note what the editor says as to the black races of bees, and also on page 181 I notice that Mr. Doolittle says that, as to gathering nectar from basswood and clover, he has never been able to see any difference between the two races.

Now, this is a subject to which I have given a great deal of attention without making a very definite conclusion. I still have both races, and so far I cannot rate the ordinary Italians much ahead, as a great many beekeepers do.

A short time ago Dr. Miller said he thought that not many beekeepers of the present time ever saw a case of "roping" or hanging down from the comb in a rope-like cluster. I have had the blacks do this time after time, and sometimes it is a great advantage, as the bees are very easily shaken from the comb. This is usually very difficult with the Italians.

When I began keeping bees I secured a very gentle strain of Italians which were highly recommended as honey-gatherers. After I increased them to about half a dozen colonies, I thought I was sure of a fair crop of honey; but imagine my surprise when they began to swarm about the first of May, and kept it up until the season for storing honey had passed. Of course I had not had enough experience then to know how to manage them to the best advantage, or I might have secured some honey, anyhow. Since then I have learned how to manage them better; but I still feel that I do not know all there is to be learned, since I sometimes meet with surprises.

For the past five years I have had two apiaries about three miles apart—the one at home of Italians, the other of the common black variety, and so I have had a fair chance of comparing the two races. With Mr. Doolittle I find no practical difference in the honey-gathering of the two; but in other respects I find considerable difference between them. The blacks do not rear brood quite as early as the Italians, which is an advantage here, as the nectar flow is usually rather late. The blacks swarm later, and generally not until they have filled one super with honey, while the Italians will often swarm before they have worked in the supers at all. The blacks seem to economize their stores better in wintering, as I often have to feed the Italians, when the blacks, with exactly the same management, will winter without any feeding at all. As to the gentleness of the two it is a rather open question. Often I find colonies of almost pure Italians that are as cross as any bees could be. Smoking the blacks soon stops them from stinging, while I have found some Italians that were very hard to control with smoke. For color I prefer the Italians. Taking every thing into consideration I find that the Italians are often overrated. I can get just as much money from the blacks as from the Italians.

Stonecoal, W. V.

A BONANZA COLONY

BY R. J. T. MUCKLE

It may interest and encourage some beginner to see the photograph of a "Corner in Honey" in Manitoba, where "Our Lady of the Snows" is supposed to hold eternal court. The background is oak, poplar, wild plum, and nut-hazel; the foreground, Grim's alfalfa and popcorn. The whole takes me back to Honolulu of fifteen years ago.



A corner in honey.

On May 26, 1914, I received a nucleus and queen from an advertiser, and by feeding and the switching process I had, by July 27, not only tiered up as shown, but produced and sold at $11 each two strong swarms.

On Aug. 20 I extracted from the three center boxes 142 lbs. of a honey which our Ottawa authority, on testing a ten-pound sample, declared was the finest he had ever come across—that it was in a class of its own, and that we might put our own price on such an article. I then divided this immense colony into three heavy stocks. I fed ten pounds of sugar, made into thick syrup, to each, and, though strong for my years, being a "forty-niner" (not gold seeker but born in 1849), I found them a heavy lift to put in the cellar. They were in ten-frame hives, and weighed 76, 83, and 90 lbs. respectively.

For over 40 years an enthusiastic student of the grand cult, I have absorbed so much from various sources I cannot tell whether I learned that which I think I know from reading or experience.

Clandeboye, Manitoba.

SOME KINKS IN THE QUEEN BUSINESS

BY W. S. M'NAIR

The first queens I bought I ordered from a reliable firm, using an old price list. The price was six for $5. They sent me three queens and an invoice at the rate of $1.75 each. I wrote them to cancel the rest of the order, also sending a money order for the difference, 25 cts. In a week I got the three queens, according to the original order, and I had to pay $1.75 each for these also. When I sent the money for the last three queens I asked if they did not receive my letter canceling my order, to which I got no reply. Now this was very unbusinesslike. They should have canceled my order when requested.

I ordered three golden Italian queens from a man who advertises extensively. They were untested, which means (or is supposed to mean) mated queens not kept long enough to show if they are purely mated. I also bought eight more queens from this breeder, and successfully introduced nine of the total number. I have not got a colony of golden bees yet. I do not know whether or not these golden strains have become fixed in color yet; but I do know that I have some queens that were supposed to be leather-colored that are as yellow as these famous goldens. I have come to the conclusion that some queens sold as untested are tested and found mismated.

The breeder of these queens wrote me that the only danger of getting cross-bred queens was from an apiary of Carniolans not far from his queen-breeding yard. As a matter of fact, all my queens were crossed with three-banded, the queens being beautiful in color, yellow to the very tip. Their offspring varied from three-banded to golden, not more than 25 per cent of each hive being golden. In one or two of them the only golden bee was the queen.

These queens also were supposed to be

gentle and good honey-gatherers. As far as that was concerned they were fair; but of course I could not judge them, since I did not get a pure one. No one can judge a strain of bees unless he manages to get properly mated queens.

This is not the worst experience I have had in buying queens. So far I got queens in exchange for my money. One time I did not. In late July, 1913, I ordered a tested Carniolan queen, and sent a money order for $1.50. After waiting for some time I wrote and asked why I did not get the queen. As well as I can remember he said he did not have any tested, but could supply untested. I then told him to return my money. This was about November. After a week or so I received a check for one dollar on a small bank or at least a bank I never heard of before, in New Jersey. I felt pretty sore by this time over the transaction; and as I would have had to pay exchange or discount at any of our banks to have it cashed I returned the check to him and told him if he needed money bad enough to keep the 50 cts. he could also keep the dollar. I also suggested that he could send me the money in the form of an express-office order. But I suppose he needed the money, because I never heard from him again.

I am glad to say that, in my experimenting with different breeders, I have found one man who sells what he advertises. I have bought about eighteen queens from this breeder, and I could not praise his bees too highly. They are good from start to finish. The queens were all untested, and a large percentage (about fifteen out of eighteen) turned out purely mated. This is where I get all my queens in the future. It is a great thing to a man ordering through the mail to know where he can get what he pays for.

How large a number of classes queens are divided into! There are untested, selected untested, warranted, tested, selected tested, etc. It is getting to be like eggs in the grocery—strictly fresh, fresh, choice, new-laid, etc. I think this is all tommyrot.

You can't tell from the looks of a toad how far it will jump. You can tell very little about a queen until she gets started in a hive. I have seen queens that looked good which proved useless, and small-sized queens that had no beauty about them at all do good work.

To my mind there should be only three classes of queens—untested, tested, and breeders; and I believe when all is said that is all the classes there are.

Hamilton, Ontario.

WHICH IS THE PERSISTENT AND DOMINANT RACE?

BY WESLEY L. ROBERTS

I wonder if you fully realized all that is implied in the expression which you used in an editorial on page 175: "The fact that blacks seem to be the persistent and dominant race." I have studied bees by day, dreamed of them by night, and read both by night and by day. I read that the Italian bee is the bee to get, since they excel in a number of different ways. And so I have been going in for the Italian bee. I have also been led to believe, both by study and observation, that any race in its purity (speaking broadly) that excels in good qualities would be "the persistent and dominant race."

It would seem that the black or brown bee is "the persistent and dominant race" among bees. That is what you say. The proof is that all others, when left to themselves, revert to the dark type. Circumstantial evidence is added in the fact, admitted by all, that the so-called hybrids or cross-bred bees, after the first cross, show a breaking-up of all good qualities, lose their stamina, become constitutional weaklings, and, of course, become much more subject to disease than the pure bloods of any race.

Perhaps I have made a mistake in getting the Italian race of bees. Would it not have been better to send to Switzerland and get some of the black or brown race in their purity? The Helvetians probably have them more pure than in any other part of the earth.

Then because they are "the persistent and dominant race" in their purity they would possess much constitutional vigor, their stamina would not be broken by cross-breeding, and so they would have vigor to resist disease, the energy to gather an abundance of honey, and ability to defend it.

If I have made any mistake in getting the Italian race of bees I should like to know it as soon as possible. "The persistent and dominant race" is the race I want, because every thing in nature shows me that is where to look for improvement.

Lavalle, Wis., March 10.

[You are reading more than there is

expressed or implied in the quotation about blacks being the "persistent and dominant race." If you will read again our editorial on page 175 you will see that this "persistency" and "dominance" does not mean that these two characteristics comprise *all* the other desirable qualities in bees. And you will see, also, that we made an exception in the case of the leather-colored Italians. Note our last paragraph, second column.

The wild blackberry, for example, is "dominant" and "persistent," but these adjectives do not argue that it is the most desirable for the small-fruit grower who is engaged in the business of furnishing blackberries for the market. The cultivated varieties are vastly superior. Again, the scrub cattle of Mexico and the southern portions of the United States are, no doubt, a "persistent" and "dominant" breed of cattle; but it does not follow that in the matter of milk or beef this breed comes anywhere near the modern Jerseys or Holsteins. The point we tried to make was that black bees, for some localities, will breed up better and faster than some of the so-called yellow and extra-yellow Italians, and in some cases better than the regular leather-colored Italians; but that does not follow that the black bees of Virginia will be the equal of a strong and vigorous strain of Italians, either for honey production or resistance to disease for Virginia or elsewhere. As a matter of fact, blacks do not resist foul brood like the yellow bees.

The tendency of nature is to revert back to the original; but it does not follow, nor have the facts proven, that a pure strain of Italians where there are no blacks will in time degenerate to black bees. When we speak of black bees or brown bees it is proper to say that either Carniolans or Caucasians or Banats are their superior in almost every respect. In some cases they may be better than leather-colored Italians; but our experience, covering an extended observation and travel all over the United States, leads us to believe that the ordinary Italians that have not been run for color are superior to any other strain of bees, although an exception should be noted in certain localities. The fact that Italians have the preference on the part of about 90 per cent of all the beekeepers in this country would seem to indicate that even if they are not the "persistent" and "dominant" race of the world they are superior, from the standpoint of dollars and cents, and convenience and ease in handling; yet there are certain localities where we might prefer Carniolans or Caucasians; but these localities are very limited.—Ed.]

AN APIARY OF 250 COLONIES WINTERS SUCCESSFULLY ON ASTER HONEY

BY J. L. BYER

The first time I remember hearing of bad effects of aster honey was at the Denver convention some years ago, when the Manley Brothers, of Sandusky, Mich., stated that in their section the late honey always proved fatal to the bees, and as a result they did not try to winter the bees any more, preferring to take all the honey away and buy more bees next spring. Many of us thought it a wasteful plan, to say the least, and we all had our idea as to how *we* would do under like circumstances. The most popular plan advocated was to extract all the late honey from the brood-nests and then feed sugar syrup; but, like some other things advocated, it is easier sometimes to tell *how* to do a thing than to do it.

Since that time we had almost forgotten what we heard about aster honey, as in our locality we never had any of it. But last fall at the yard 100 miles north of Toronto we unexpectedly got a flow of this honey in September, and then again aster honey became a live topic. There were 250 colonies in the yard; and while clover had been a failure, during August we got a flow from thistles, willow-herb, etc., of about 50 pounds per colony. During August I sent up 2500 pounds of sugar, thinking that much or more would be needed as among the 250 colonies one hundred were in eight-frame L. hives, and, as all know, when running bees in hives as small as that for extracted honey, as a rule there will be light brood-nests in the fall when supers are taken off. Honey was taken off during the first week in September, and all supers stored in the sheds. About Sept. 10 the weather turned very warm, and the millions of small blue asters growing on the uplands, that we had hardly noticed, began to yield honey. For twelve days this hot weather continued, and honey came in quite freely. We saw at once that some of the strongest



The bees appeared lively and healthy in every way.

colonies in the eight-frame hives would have to be given room, and a single full-depth super was given to about 60 colonies.

Over 1000 pounds of honey of light color, light body, and rather indifferent flavor, was extracted, while of course all the other colonies without supers—nearly 200 of them, simply jammed the brood-nests solid. We had aster honey for once—no doubt about it—and now it was high time to put into practice some of the suggestions we had so freely offered Manley Brothers at Detroit. But (let me emphasize the word) when we looked at that big yard with solid combs, the weather chilly most of the time, and bees quite stupid, the idea of tearing out all those combs from the brood-nests did not look a bit fascinating; in fact, it was almost an impossibility, all things considered, and I began to see why bees were left alone with late stores, even if they stood a good chance of dying before spring. They managed to feed 700 pounds of sugar to the 100 eight-frame Langstroth hives, but no more would they take, even when inverted pails were left over them for two days. The other 150 colonies had much deeper frames, and feeding was not to be thought of. So, after all we had said on the question previously, the bees were left to winter on aster honey, and in a locality where the mercury often crawls to 30 below zero F., and once in a while to 40°.

During the past winter, reports from aster honey as a winter food gave us but little comfort; and during all the season, including this spring, I have seen only an isolated case or two where success was reported, and then the bees had flights in February. We are all familiar how the bees of the Root Co. acted. Although wintering in a model cellar, they had to be carried out for a midwinter flight. So good an authority from so far south as West Virginia, Mr. L. H. Robey, wrote me that they often have trouble with aster honey. It sours in the hive, and if the bees are confined very long it is sure to cause dysentery. He said he felt quite sure that, if his bees had no flights from late November till February, they would die if wintering on this honey. As we have some of Mr. Robey's bees at this yard, of course his experience did not encourage us very much.

The bees at the yard in question had no flight after the last week in October. December was the severest on record—much the coldest month of the winter. The nearest tested thermometer registered 42° below on Christmas day; but at that time the hives were pretty well buried with snow. As March came in, a day warm enough for bees to fly was patiently waited for; and as the month began to draw to a close without such a day, I am afraid that I began to be a bit impatient sometimes. Our bees in



About a foot of snow lay under the trees.

York County had several partial flights during the bright days of March; but the temperature rarely got much above the freezing-point in the shade, although the month as a whole was delightful. A good friend in Orillia, Mr. Bruce Murphy, a manufacturing jeweler who keeps a few bees as a side issue, very kindly wrote me frequently as to the weather up there; and as he is only fifteen miles from our bees I felt sure that his local conditions would be similar to what they would be at our apiary.

To make a long story short, the bees up there had no flight until April 7, when the weather turned warm. On the next day I took the train and went up to see how bad the wreck was. The bees had been closely confined for over five months. Arriving at the destination about 1 P. M., and getting a key at a neighbor's, I started to walk through the bush south of the apiary. About a foot of snow was still among the trees, as can be seen in the distance at the left-hand corner of one of the pictures. The day was warm—fully 60 in the shade; and as I heard the roar of bees I knew they were not *all* dead, anyway. As I approached the yard I squinted through the trees when within sight of the apiary, expecting to see the smeary marks of dysentery around entrances of the cases. As I got a bit closer, sure enough there were dark colors there all right; but as I got closer still, I saw that the coloring was bees, which seemed to lie by the hundreds around every entrance. I soon found that they were robbing out two colonies that had died from queenlessness, and of course the bees were guarding their entrances. But I assure you that, after not seeing the bees for so long, the tremendous roar of the thousands of bees in the air was the sweetest music I had heard for some time.

A rapid but by no means thorough examination that afternoon and the next forenoon revealed the following facts: Not a spot of dysentery in the whole apiary, the bees appeared lively and healthy in every way. Out of the 250, probably ten or twelve were dead. I suspect all had been queenless last fall, as the few I looked into had no bees, and had solid combs of honey. Roughly speaking, 200 appeared to be strong while about forty were weak. A lot of swarming in August, no doubt, left some weak colonies last fall; and during the flow in September there was little brood, and field bees would be worn out. That would mean weaker colonies than under ordinary conditions. Bees were heavy with stores, and they seemed to have used little for wintering. Stores were in excellent condition; and in the queenless colonies mentioned, some unsealed aster honey was at the bottom of combs, thin and watery, but not fermented. Of course I was gratified; and while too early to whistle very

much, it seems certain that aster honey in this case was not bad for wintering. The honey was gathered during very warm weather, and bees were packed early in October. That may have helped.

Is there a possibility that different kinds of aster vary in the matter of quality of honey? Although much of the larger kind with blue blossoms, growing in low lands, was present, yet no bees touched them. They swarmed on the smaller blue variety growing on the uplands. I don't know why such difference between here and Ohio and other places. Can any one enlighten us?

BEE VALUES AND SOME QUESTIONS

BY FRED E. WHITE

I have been asked "What is the value of a hive of bees?" so frequently that it has become desirable to have a ready answer; and to that end I have been figuring as follows: Local values are—bees, $3.00 to $5.00 (swarms or in boxes); ten-frame L. hive with full sheets of foundation, $4.20 (medium brood, 12½ cents per sheet).

This combination might prove satisfactory for the summer months, and so might the price ($8.50 roughly); but what about early spring when folks generally feel the lure of the land, and are searching for "ways and means"?

At this time, as I understand it, a hive must be complete, and that would mean adding to the above figure the value of the drawn comb, which would be about $5.00 extra, and the price of the 35 or 40 lbs. of honey left in the hive for winter feed, say $6.00 (honey retails here at 17½ to 20 cts. per lb.).

There is yet another item that should be recorded; viz., the winter losses. These should be averaged, and the results added. These figures bring the total up to about $20.00.

I do not think one would make many sales at this price, as the old box hive at $5.00 looks more attractive.

1. Wherein can these figures be reduced?

2. How early in spring can bees be satisfactorily transferred to foundation?

3. If swarming is discouraged and dividing practiced, can one sell bees in early spring without combs?

4. What does your experience in selling bees by weight suggest in this connection?

5. What is the accepted value of a frame of Langstroth worker comb?

6. Is a honey-flow necessary to make bees draw out foundation?

Bees at $5.00 in the spring and winter, feed at $6.00, as above, does not look like good business, especially in view of possible winter losses; but, unfortunately(?) bees are not to be had in large quantities here, and so it would not pay to destroy them in the fall and sell the honey. Perhaps the better way would be to winter them on sugar syrup.

North Vancouver, B. C.

[2, 6. It is almost impossible to give a definite time, owing to changeable weather. Usually not until fairly settled warm weather can be expected. If the bees are fed syrup a honey-flow is not a necessity.

3, 4. Selling bees by the pound before June 1 is a pretty expensive proposition, as we know by experience.

1, 5. It seems to us that most of your figures are pretty high. In the spring there would not be 30 to 40 pounds of honey in the combs, ordinarily. Again, it is possible to buy drawn combs, frames and all, for 25 to 35 cts. apiece. If $3.00, say, were added, the cost of the frames and full sheets of foundation should be deducted from the cost of the hive in the first place.—ED.]

COST OF RUNNING AN AUTOMOBILE

BY HARRIS T. KILLE

According to the experience of U. T. Cox, given in the March 6th issue of the *Rural New-Yorker*, the editor's estimate of 10 cents a mile as the cost of running an auto truck is none too high. Mr. Cox used an auto truck with a rated capacity of 1500 lbs. He lived seven miles from market, and used it for hauling fruit. Concerning the cost he writes as follows: "The truck cost $750, and has made about 750 trips or more the past three years. It is about worn out, though it would have lasted much longer with better care, and had been used on good roads, so it has cost about $1.00 per load in wear and tear of the machine, and operating expenses and repairs in that time cost about 75 cents more, or $1.75 per round trip." The round trip in this case was 14

miles, so the running expenses were 12½ cents per mile.

Twelve and a half or even ten cents a mile may look appalling to the average beekeeper, simply because he has never figured the cost of keeping a horse. Even if it were true that the mileage cost of traveling or hauling by auto truck exceeded many times that of doing the same work with horse power, it does not necessarily prove that the horse is the more economical means of transportation for the beekeeper. Time is money, and no one will deny the fact that the auto saves time. Mr. Cox was able to save at least three hours a trip in hauling his fruit to market. If we value his time at 25 cents an hour (and if he is much of a farmer he will be insulted at such a low valuation) he saved 75 cents' worth of time a trip—enough to pay operating expenses and repairs.

Beekeepers seem to be either disinclined or unable to get hired help. The time that the apiarist can expend among the bees largely determines the size of his income. So the profit of an automobile should be estimated from the extra hours it will enable the beekeeper to be among the bees doing profitable work.

I should like to see the cost of running autos discussed further in the columns of GLEANINGS. I think Mr. A. W. Smith, pages 122-123, Feb. 1, was rather fortunate in getting an extra good car at an extremely low price. The average beekeeper may not be able to duplicate his results. I wish he had told how he fixed his Ford so that he could carry loads of hives, and how heavy loads he was able to take safely at a trip. May we not have more articles and photos dealing with the auto for the beekeeper? Let us have original cost, period of usefulness, cost of running, method of building carrying body, time saved, etc.

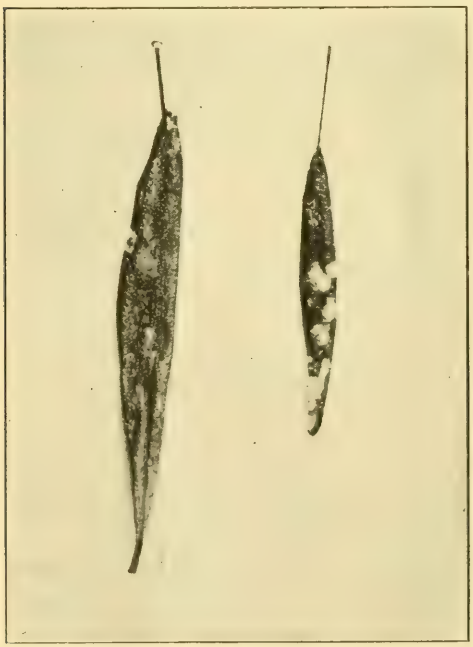
The auto is, I believe, destined more than any thing else to make beekeeping an industry for the specialist. Surely it will enable us to follow Hutchinson's advice to "keep more bees."

Swedesboro, N. J.

A GRANULATED DEPOSIT OF HONEY-DEW

BY ALVIN L. HEIM

Honey-dew is deposited on olive leaves by the black scale, which causes fruit and branches to grow sticky when it is warm.



Crystallized honey-dew on olive leaves.

I think the granulation of the honey-dew was caused by a rain some time ago. The deposits dissolved, and the consequent evaporation of the waterdrops left the deposit as shown. The bees worked on it during the early summer last year, but not much after the blue curl began yielding nectar.

The honey crop in the alfalfa and carpet-grass regions of this state last year was very poor, and the market in honey is even poorer. The outlook is "blue."

Fairoaks, Cal.

The Irresistible Call

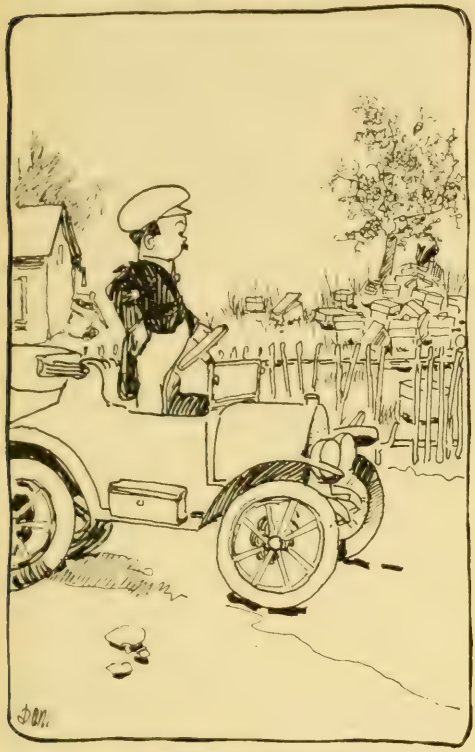
BY GRACE ALLEN

The year with his ancient enticings
Is tempting the summer to come;
The trees are in leaf and the lilac in bloom,
And the bees are beginning to hum.

Spring's daffodils down in the corner
In tarnished gold wither and waste,
And the purple-blue iris is flaunting her flag
To signal the summer to haste.

She might have resisted the blossoms
Or singing of birds in the trees,
But she'll come—oh! she'll come on a wind from the south
When she hears the old hum of the bees!

Heads of Grain from Different Fields



The Backlot Buzzer

You don't have to get very close to a beeyard to tell whether the fellow who owns it is interested in it or baseball.

Aster Honey—Its Quality and Color

Can you give me some reliable information regarding aster honey? I wish to know of the color and quality. I read an article by a correspondent of GLEANINGS some time ago in which aster honey is described as light in color. Dr. Phillips questions this statement, and I had always believed that aster is a dark honey, though we get none here except such as is mixed with other honeys.

As you handle so much honey from so many different localities I thought that you might have seen samples sufficiently pure to enable you to inform me in regard to this particular point.

Atlantic, Iowa. FRANK C. PELLETT.

[The name "aster," when referring to a certain honey, covers a multitude of sins. There are some aster honeys that are comparatively light in color, and not bad in flavor; but most of the asters that we have tasted and marked as such are on the light-amber order, and lacking body. Some would call the flavors comparatively good, while others would call them poor. Any one who has been educated to the use of clover honey, alfalfa, or mountain sage, would call the aster flavor poor; but others who have been educated to eat aster honey might call it of good quality. For example, a great many people who live in New York like the buckwheat flavor because they have been brought up to eat it from childhood. But most people outside of that state would prefer almost any other flavor to buckwheat.

To answer your question more explicitly, we may say that the general markets do not class aster as a table honey. While it would hardly rank in flavor with most of the amber honeys, it is lighter in color than the average of the ambers.—ED.]

Why Aster Honey Makes Trouble Sometimes and Not Others

It is noteworthy that most of those beekeepers who report bad results from using aster honey as a winter food place their hives in cellars; while those who have found it without objection winter largely outdoors. From this it is clear that aster honey under proper conditions must be wholesome and harmless, since if it were deleterious in itself there would be uniformly bad results.

Aster honey is open to two objections. First, it crystallizes quickly, and at times in such a hard form that it is partially unavailable. Thus occasionally bees may starve with an abundance of candied aster honey in the hive. Second, aster honey is gathered so late that winter may begin before it has been properly ripened and sealed. If the hives have been placed in a warm damp cellar th honey may easily deteriorate or spoil, producing dysentery among the bees; but probably any other honey stored equally late, and not fully ripened, would do the same. There has not yet been a particle of evidence offered to show that the chemical constituents of aster honey are in any way injurious to bees or human beings. On the contrary, it is an excellent table honey, and hundreds of colonies of bees have wintered on it with very small loss. No doubt it is often blamed for failures that are due to other causes which the beekeeper has failed to perceive. JOHN H. LOVELL.

Waldoboro, Maine.

What is Squash Honey?

Mr. Newell, page 647, Aug. 15, 1914, under the heading "Squash Honey," says of my communication on page 433, June 1, "If you can believe your botany all alders bloom in spring. To controvert this assertion I may be pardoned for mentioning what I find in Prof. Gray's School Botany, as many readers of GLEANINGS do not possess a botanical work, nor understand that common names of plants are not distinctive. He chooses to use the common name that would be misleading to some.

Gray's Botany, page 217, Sec. 19: *Clethera*, white alder (old Greek name of *Alder*, from some resemblance in the foliage). Flowers in summer. *C. alnifolia*, the only common species, in low ground three to ten feet high, with wedge-obovate sharply serrate, straight-veined leaves, and upright panicled racemes of fragrant small flowers."

Mr. Newell also says: "Our fall honey all comes from squash-blossoms." For many years my bees have collected quite a lot of goldenrod honey, depending on conditions of weather.

Further on he says, "If you know anything about squashes you know the blossom is open only one day." Having made a specialty of melons until I was 67 years old, I know that squashes and cucumbers have the pistillate and staminate in distinct blossoms, the staminate appearing some time before the pistillate, and very much more numerous, and holding more than one day, while the pistillate will close very soon after it is fertilized; but if not fertilized it may hold for more than one day; but as the bees are always numerous on them they are very likely to be fertilized the first day.

Bees work on many flowers which give only pollen; and in my opinion that is why they work squash and cucumbers. Dr. Miller has said in some of his

writings that there was a pickle-factory at Marengo, and an extensive field of cucumbers, but he did not know what cucumber honey is.

Until fourteen years ago, in the neighborhood where I lived melons were cultivated extensively for the Lowell and Nashua market, and I always had bees. Yet I don't know what melon honey is. I think it is principally pollen that the bees get out of their blossoms.

Woburn, Mass. JOHN P. COBURN.

[We believe our correspondent is in error in believing that bees do not get nectar from squash-blossoms. See A B C and Z Y Z of Bee Culture, page 360. "Nectar abundant in a little reservoir at the bottom of the flower."—ED.]

Making Increase with a Pound of Bees and a Strong Colony

With one strong colony of hybrids in one hive and half a pound of Italians, with breeding queen, in another, how would you proceed to get the greatest possible increase in one season? WISCONSIN.

[In the first place we would draw a frame of hatching brood from the strong colony, giving it a slight shake to jar off the old bees. The young bees will cling to the frame. Give this to the pound of bees. As soon as the brood has hatched, or the larger part of it at least, give another frame of hatching brood as before. Give it a slight shake before doing so. Continue thus to draw on the strong colony till both are of about equal strength. From that time on, increase can be secured by any of the well-recognized methods given in the text-books. Queens should be reared from the breeding queen; and as fast as the nuclei are made they should be given a cell or a virgin queen from the breeder.

At the very beginning of things all drone brood in the hybrid colony should be uncapped and beheaded, and a drone-trap attached to the entrance to catch the flying drones.

As soon as it is practicable, a cell or a virgin from the breeder should be given to the hybrid. After increase is well under way, give the breeding queen to a nucleus. It is always desirable to keep a breeder down so she will not exhaust herself by continual egg-laying. If she is kept in a nucleus of one or two frames she will furnish all the eggs for grafting or cell-building that will be required.—ED.]

Some Questions on Queen Introduction

I am having considerable trouble getting the bees to stay in twin mating boxes. I have set out so far about 100 boxes, giving each a feeder of thick honey, a day-old virgin, and a pint dipper of bees. The bees seem to drift or abscond from some of them by degrees.

In thinking the matter over, it seems to me that my mistake must be in using too young a virgin without any brood. At any rate I shall give the next bunch about a five-day-old virgin, as an experiment. I do not see how bees can be made to stay on dry comb for ten days. Please advise if this is my mistake.

How old can a virgin be before introduction is made, and still be reasonably sure of mating?

In this country every thing has to be protected from heat, and I have set the boxes out under shade-trees, four on a stand.

We still have 200 of these boxes, or 400 nuclei, to set out, and you will realize that, bees and all, it is quite an investment.

How old should a virgin be for smoke introduction? I used three-day-olds last fall, and very little smoke, but find a lot of drone-layers this spring. This locality is extremely peculiar in that virgins seem to remain soft, pale, and distended between two and four days after hatching on account of heat, and are a very bright yellow after mating, and until shipped elsewhere, when they assume natural shade.

I do not believe it safe to introduce by smoke here with the queen less than five days old—may be not at all when it gets hot. It averages 105 to 110 in the shade here during July and August.

Overton, Nev., April 2. T. W. RIGGS.

[Mr. Mell Pritchard, our queen-breeder, replies:]

We prepare our boxes by opening the ventilators and closing the entrances, filling the feeders with very thick sugar syrup, and putting in one dry drawn frame on each side. We next drop in a virgin, and pour in about ¼ lb. of wet bees on each side; close up the covers, and set the boxes in a cool shady place, leaving them there until late in the afternoon of the following day, when they are placed on the stands, and are released before sunrise the next morning. By this time the feed has all been taken out of the feeder and put in the one frame. After the bees have had a fly and settled down we put in the other frame on the side next to the division-board. The queen will lay in this frame, and the brood is the warmest part of the box. We prefer virgins about two days old; but virgins introduced at four days old probably make just as good queens. We would not use them much older than that.

Our boxes are on individual stands, in rows 15 feet apart each way. We have tried putting them closer, but find too many queens are lost at mating time. Our boxes are in the shade. With a temperature of 100 the frames would surely melt down if they were not shaded.

Transferring Made Easy

In transferring from box hives I simply made a frame out of half-inch stuff which would cover a ten-frame hive-body. This frame had a square hole in the center, about 8 x 12 inches. I laid this over the new hive, then took off the bottom of the old box containing the bees, and set the box (bees and all) over the new hive. After stopping the entrances to the old box I pried off the lid or cover, and with a little smoke drove most of the bees off from the combs into the new hive. Starting on one side I began cutting out the old combs. When I came to the brood I filled two or three frames with this, and put it in the new hive.

I transferred ten hives of them in February in this way, and about the 10th of March I had to put on supers, having saved every one of the queens. They went right to work in their new quarters.

This method, I find, saves most of the muss one makes by the old way as described in the A B C and X Y Z. Besides, there are practically no bees flying about to bother. What little honey there is dripping around is in the new hive. They soon clean this up and store it in their own hive.

Willowbrook, Cal. F. E. DUTCHER.

Two Queens Wintered in the Same Hive

I have a queen I purchased two years ago. Last summer the bees seemed to want to start cells to supersede her. I let one of the cells hatch out with her. Last fall I found the young queen laying, and the old mother queen, which was clipped, on the same comb to-day. I opened the hive and found both queens, the old queen laying, but the young one on the outside comb in perfect condition, but not laying. She is a nice large queen, larger-looking than the mother. I never knew two queens to winter in one hive loose together this way before. I am very sure the young queen was laying last fall, and am sure the old queen is laying now.

East Dennis, Mass. O. F. SNOW.

A. I. Root

OUR HOMES

Editor

Trust in the Lord, and do good; so shalt thou dwell in the land, and verily thou shalt be fed.—PSALM 37:3.

I have been young, and now am old; yet have I not seen the righteous forsaken, nor his seed begging bread.—PSALM 37:25.

When any one comes to me for advice, especially when any boy or girl wants the benefit of my experience in times past, as a rule I am ready to respond at once; but below is a letter received some two months ago. In this case I have delayed answering because I wanted to consider the matter well, and possibly get some light from some of the various periodicals which it is my pleasure to review more or less every day of my life. Besides, I have been praying that God would give me wisdom and understanding as I consider our young friend's troubles. Here is the letter:

Mr. Root:—I am a boy eighteen years old, belonging to a family of ten. All but one are younger than myself. Mr. H. H. Kolloster, who is a neighbor to us, called my attention to an article in your journal in which you make answer to letters he has written you. He informed my father and myself that he had used our case as an illustration of the unemployed. It has been some two years since I first met Mr. Kolloster. As he seemed quite intelligent in his talk I decided he could give me the information desired. At that time I had a great desire to join the army, as the Government advertised they would teach the soldier a trade, and that was just what I wanted. So I asked him how I could join the army and become a soldier. Imagine my surprise when he asked me what foreign working man had offended me that I should want to kill him. I explained I had no desire to kill any one. I wanted to learn a trade, and in this way I could do so. Again he said, "Find me a soldier who returned from the army who had learned a trade there, other than *murder*. Go home and take your Bible and read, 'Thou shalt not kill.' God meant that when he said it; and when you become a soldier you are given a rifle, a sword, and revolver, and you are taught how to use them, and you kill people whom you never saw and who never harmed you, just because somebody who is your boss tells you to; and the more you kill, the bigger hero you are. A battle-ship is a very large machine. It takes from seven hundred to one thousand men to run it, and its use is for no other purpose than to murder people; therefore it is a murdering-machine, the best that man can make."

Mr. Root, your sour-faced friend changed my mind. Was he right? I joined the Boy Scouts then, and later informed my friend that I had chosen something better than the army. He pleasantly drew a word picture connecting the boy scouts with the army, and my peace of mind was again disturbed. I disbelieved him, but the picture he drew was so forceful that I dropped the boy scouts. Now, Mr. Root, would you have advised me as he did?

I was born in Belgium. My poor old grandfather was stripped of every thing he had in this world, and was forced from his own native land into a foreign country, and other relatives missing, there to accept charity. The picture my native country presents to me causes me to think of soldiers and murders, and the boy scouts are found there as soldiers.

Here is one problem Mr. Kolloster has never been able to solve for me, and it is the sole object of this letter. I am eager to learn a trade. How can I do it? If you can solve this problem for me you can do me a world of good. I am quick and easy to learn, and ambitious, orderly, and obedient. Here is my problem: Two years ago, on account of sickness in our family, it fell to me to support this family of ten on $1.25 a day of 12 to 13 hours. At the end of eighteen months, with my father barely strong enough to be around, I was informed by my doctor that if I did not quit work at the mills I could not last long. After doctoring a month I worked for Mr. Kolloster for two months, building houses. He has not had a contract since, and I have not been able to get more than a day or two of work at a time, and the family is supported by the children who are able to do a little each week to help catch the nickels. I am just now filling the only place offered, that of messenger boy at ten dollars a month, and board myself. When you solve this problem, please send it to me. I would inclose a stamp, but you see what chance I have of getting it. Our streets are full of men out of work.

I will give you some points that Mr. Kolloster has taught me since I have known him. He says that under socialism all children would be educated, and learn the trade they would like to learn until they are twenty-one years of age, at the expense of the whole people, text-books and board included. Don't you think that would be all right? He says that after twenty-one years all men and women would be paid by the whole people the full value of the product of their toil less the expense of running the industry, and every man and woman guaranteed a job. Is that wrong? He says all the things publicly used would be publicly owned, and why not? He says there would be no profit and no interest, and he that won't work shall not eat.

Palatka, Fla., Feb. 14. JOHN GIBBON.

My good friend, I am glad to know that your neighbor asked you to turn to your *Bible;* but I regret that he did not at the same time ask you to present your troubles to the good pastor of your church. I take it that you go to Sunday-school and Endeavor society.* I greatly fear, however, that you do not. I would also advise you to talk with the superintendent of the Sunday-school. He certainly should be able to give you *some* needed advice. Your letter has done me good, because it has set me to thinking, and to talking with good and wise people. Perhaps I have been in times past a little bit too vehemet in denouncing war and warlike instruments. You may, perhaps, be aware that there are some religious denominations that call themselves "Non-resistants." They will not go to war nor will they go to law. I knew quite intimate-

* A judge in Brooklyn (one of Frank L. Brown's old Sunday-school boys, by the way) says he has sentenced over twenty-six thousand juvenile criminals; but among them all was not a single Sunday-school boy or girl.—*Sunday School Times.*

ly one such old gentleman who was a beekeeper. This beekeeping friend had a lovely daughter. A bright-looking chap, an entire stranger, got his eye on the girl and made love to her. Her father remonstrated; but as he was a non-resistant he did not make any great fuss over the matter. This slick young chap deliberately ruined the girl and left her. The father would do nothing, because he did not *believe in going to law.* Her own brother told me that his father, on account of his foolish religious principles, let this young reprobate go off "scot free," to ruin some other girl in the same way.

My young friend, you cannot remember, but I can, when John Morgan's band of guerillas invaded Ohio. They crossed the Ohio River, ransacked the stores, and robbed the banks; and they would have kept on going all over Ohio had there not been some men (and boys) who knew how to shoot. Had you and your good neighbor whom you have quoted been present in such an event, would you have permitted those guerillas to go on with their work simply because the Bible says, "Thou shalt not kill"? Suppose all of our great cities were to be suddenly deprived of policemen, or, let us say, the policemen to be deprived of their revolvers and other implements of warfare, what would be the result? In the city of Cleveland, murders, holdups, etc., are so common that petitions are being circulated to double the number of police. Occasionally a pickpocket, burglar, or highway robber overmasters a policeman. Every little while we read of one who loses his life in a righteous attempt to preserve peace. We hope and pray that *rebellion* will never break out again in the United States. But suppose it does; and suppose some foreign nation should discover some vulnerable point in our borders in some poorly protected point, and a call for soldiers were made to protect "our native land," what would *you* do? Washington has been reverenced and held up as the father of this country, and as a model man ever since he died, and yet *he* was a fighting man.

Now a word about our military schools. A young friend of mine—yes, quite a near relative—lost both father and mother away off in California. I feel sure he will excuse me, under the circumstances, if I mention that he had contracted some bad habits. He was inclined to be unruly; and as he did not seem to get along very well he took a sudden notion that he would enlist. He got a situation on a battle-ship. Now, it was one of my happy surprises to see that the boy has been straightened out and literally "made over" in the course of two or three years. He had good sense enough, thank God, to realize the importance of *obeying orders* when those orders came from Uncle Sam. In a short time he was promoted for good behavior. Just a few days ago he wrote me that he would give almost any thing in the world to have me hear a good minister, with whom he was acquainted, preach. I might give an extract from that letter that caused me to thank God, but I sent it to the good pastor to encourage him in his faithful ministry. Among other things, this relative wrote me that, when the men on board his ship touched the shore, they seemed to think that they were for the time being free from restraint, and a good many of them returned under the influence of drink. At the time of his promotion he was particularly commended because, no matter how long a leave of absence he had, he always returned clean and sober. With such a man as Daniels at the head of the navy we have a different state of affairs from what there was in former times.

Now, my good friend, here is another phase of the matter: You and your neighbor seem to think that you are "handicapped." What you are compelled to pass through is not particularly different from what thousands of other boys, and especially young boys, have passed through, who have in the end "made good." Our great men in all walks of life started out under straitened circumstances, as a rule—if any thing, much *worse* than yours. But they did not sit down nor give up and lament over their "misfortune." That you may know that there are good people who are considering this very question of a military education, I give below a letter from a good woman in much the same line.

Mr. Root:—Will you kindly give in your paper a reply to a question which has troubled me, and no doubt others, for a long time? But before I put the question I want to say that your highly valued paper has been in my mother's home for a number of years, and is considered to be the best periodical which enters the home because of its Christian character and sterling worth. Being a frequent visitor at home I have derived much good from the perusal of your articles, and so in a way I feel myself a member of your great family of readers, and believe you will consider me so.

Now as to the question. We read your article about toys, guns, firearms, etc., and we should like to ask why it is that, if America is such a *peace loving* nation, it permits and encourages its young men to become so familiar with military practices and guns as it does in the A. and M. Colleges all over our land? Why will it not allow a young man to study agriculture without also forcing him to take a military training for five years, as is the custom here in Oklahoma, any way? This means much to me. I have an *only* son who has attended the A. and M. College at Stillwater for three years;

and as a *peace*-loving citizen I have often been troubled about the encouragement given to war.

Last year, when there seemed to be a likelihood of war with Mexico, a number of names of young men likely to be good soldiers was sent in to Washington by the commandant. I am almost certain my son's name was sent along, as they had advanced him rapidly. In consequence I have some objections to his returning to the A. and M., and yet I am anxious for my son to get a practical agricultural training. It is true the discipline in a way is good for the students; but could not that be secured in some other way?

I am sure there are others as vitally interested in the study of this question as myself, and for their sakes, as well as my own, would be pleased to get your view on this matter.

MRS. ROBT. BROEGELMANN.

Ringwood, Okla., Nov. 23.

Since reading the above letter, another incident occurs to me. Just a few days ago a business man in some city became suddenly insane. He shot, or shot at, everybody in sight in the office, then rushed out into the street and began to kill people right and left. Before a policeman could be found who was a practiced marksman this man had maimed or killed toward a dozen persons; and nobody knows how many more would have been killed or maimed had not a quick bullet from the expert policeman wound up his career. While it is not at all necessary that every young man should become expert in the use of firearms, at the present stage of the world's history it is exceedingly important that at least a few persons in a community should know how to save human life and perhaps protect property.

Now last, but by no means least, I have some good news for the young friend who writes the above letter, and for every other bright young boy in the whole wide world. I want to introduce you to the "champion corn boy of the United States;" and I do it by making a clipping from that excellent home journal, the *Ohio Farmer,* of April 19.

CHAMPION CORN BOY OF THE UNITED STATES.

Did you ever hear of Walker Lee Dunson? Well, he is the boy who astonished the world in 1913 by raising 232.5 bushels of shelled corn on an acre of ground. The total cost of this enormouus yield of corn was only $46.40, or a total of 19 cents a bushel. This was not the first time Dunson has won the prize for the largrest yield of corn in the state where he lives, for in 1912 he grew 172 bushels at a total cost of $35. As if to prove that it was not a matter of chance that he won twice, he again won the highest yield for his state in 1914, making the third time he has carried off the high honors and also making the highest official yield of any boy in the United States.

In January I went to Alexander City, Alabama, and inquired where Dunson lived. It was ten and a half miles out in the country over muddy roads. On the way to this farm I noticed that the land was very stony; the hills were steep, and covered with jack pines, scrub oak, broom sedge, and deep erosions. From appearance it was the last place on earth one would look for a champion crop yield of the United States. After arriving at the farm I found Walker Dunson a very much younger boy than my fancy had pictured. He was 15 years old the 4th of last December, so that will make him eligible for several more corn-growing contests. The average yield of corn in Alabama is only 17 bushels, yet the 3358 boys in the corn-growing contest made an average yield of 48.3 bushels per acre, which beat the other corn-growers by 31.3 bushels an acre.

The corn grown by the boys was made at an average cost of 26 cents a bushel, while that of the average farmer cost 70 cents. The location of the field where this high yield of corn was grown was very interesting to me. It is located in the valley between two very steep hills, and the dew settles in the valley and furnishes considerable extra moisture to the corn crop in the dry summer weather. This was the only special advantage of the location except that the valley is naturally somewhat richer than the upland. The soil was a sandy clay loam with more sand than clay. There was a splendid stream of water in the valley, and Dunson had intended to water his corn with a gas-engine and hose, but was prevented by the Department of Agriculture, as they ruled this an unequal advantage. No exception was taken, however, to the unusual amount of commercial fertilizer that was used. This field had 2300 lbs. of a 10-4-4 fertilizer but no barnyard manure.

After asking Dunson for his picture I was surprised to learn that a camera had never been to visit his place. Then I sent a telegram to Chicago and had an expert photographer start immediately for his place, and the pictures in this issue are the result. For the last two years one of the railroads has offered a fine four-year-old registered Percheron mare for the highest yield of crops on what is known as the four-crop contest. Mr. Dunson won these fine Percheron mares both years. His four crops made the following: 175 bushels of corn, 1623 pounds of cotton, 1974 pounds of peavine hay, and 3354 pounds of oats in straw. The total profit from these crops was $212.67, with an average profit of $53.17 to each crop. As Dunson had only three acres under cultivation he made an average profit of $70.85 an acre.

In addition to the horses, Walker Dunson has won a $250 scholarship to the State Agricultural College. He has also had a trip to his state fair and the national capitol at Washington, and cash prize of $50 besides. Perhaps the most interesting part of it all is that he has made the following records in the last three years: In 1912 a yield of 172 bushels of corn at a cost of $26, or 15 cents a bushel; in 1913 he made 232.5 bushels at a cost of $46.40, or 19 cents a bushel; in 1914 he made a yield of 175.5 bushels at a total cost of $35, or 20 cents a bushel. He has made a grand total of 579.75 bushels of corn in the last three years, winning every year, with a total cost of $107.40, and leaving him a total profit of $471.85 from the corn alone at the market price. The average cost of growing this corn was 18 cents a bushel. However, Dunson really made more than this from his corn, as most of it was sold for seed at $2.50 and $3.50 a bushel instead of selling at the market price.

Dunson cultivated his corn ten times last year. This was done every ten days unless there was a heavy rain, and then it was cultivated as soon as he could get on the field to work. He says he will not rest on his laurels, but intends to enter the contest again.

He plants the Marlboro Prolific corn, and has his seed all saved in good shape from stalks that have three and four ears on the stalks. His corn was drilled with one stalk standing every 12 inches as nearly as possible, and with rows three feet apart. Walker Dunson says he believes he can grow 300 bushels of corn per acre if he can keep it from

being blown over or falling down. The boy who wins in 1915 will have to do his best.—J. F. HUDSON.

You cannot claim that this boy had unusual opportunities, for he was ten and a half miles from the nearest railway. Instead of lamenting his unfortunate circumstances as some boys might have done, he just roused up and made the dirt fly. I hardly need tell you that thousands of other boys from Florida to Maine, and, so far as I know, clear on to California, are doing things along the same line; and may God be praised it is not the boys alone. Our young girls (God bless *them*) are helping the world in the same line.

Here is another clipping, from our Bradentown daily:

MISSISSIPPI GIRL AND BOY MAKE CROP RECORD.

WASHINGTON, March 23.—The best records in the southern corn and tomato clubs for the last year were made by a Mississippi boy, Carl Graves, of Soso, and an Alabama girl, Hester Sartain, of Walker.

Carl raised 202 bushels of corn to the acre at a net cost per bushel of 14½ cents. Hester raised 7037 pounds of tomatoes on one-tenth of an acre, put up 1620 pounds, and made a net profit of $146.20.

In regard to socialism, it will get along just as fast (or perhaps faster) if we all keep busy and "let up" just a little on finding fault because this great wide world is not in its present stage *altogether* perfect.

Let me touch on the question of wages in closing. There is much complaint, especially from the socialist, that laborers are not paid enough; in fact, there are quite a few extremists who insist that all employees should be paid all they earn—that is, the men who employ workmen should not have any *profit* at all. Suppose you tell a farmer, for instance, that it is not fair nor honest for him to make a profit by employing labor. If I understand it rightly they claim the hired man should have *all* the profit. The owner of the farm should have just enough to feed and clothe himself and no more. When it comes to buying new machinery needed on the farm, I presume the farmer would be allowed enough to purchase the necessary tools. I do not know what they would say in regard to the automobile. Well, a good friend out in California (I do not mean to use any sarcasm by calling him a good friend) recently wrote me that I ought to be sent over to Europe and placed before the biggest cannon, because I owned up that, years ago, I hired juveniles to do easy work, in connection with the bee business, at *three cents an hour*. Let me say here what I did not say before, that those juveniles came around after school and were greatly delighted to think they could earn a little money by something that was just fun for them; and I happen to know that some of their poor mothers were also greatly delighted to know that their children were employed in something useful, even though they got only three cents an hour. Of course they stopped at any time when they got tired; but they were so delighted with their work that they felt hurt when I told them they had worked long enough. Just now three cents an hour *does* seem small pay; but, my good friend, when I was a schoolboy I rode horse to cultivate corn all day Saturday for 25 cents, which was only 2½ cents an hour, and I was as much delighted with my "two-shilling piece" when night came as you can well imagine. I did not find riding a horse to be drudgery, for the man who employed me was a good kind friend, and I might, perhaps, confess to you that at that time my good father and mother were finding it uphill work to feed and clothe a family of seven children, and the 2½ cents an hour I earned seemed like a Godsend. Now, I leave it to the readers of GLEANINGS to decide whether it in any way hindered my progress because I did thus early in life help to support the family by working all day for 25 cents. As for myself, I can now fervently thank God that conditions were such in my childhood that I had to work thus, even at small pay. Had not my parents been comparatively poor people, I fear I never should have learned to love gardening and chickens all through my life, and clear up into old age. God bless the boys and girls who are at present finding pleasant and profitable occupations in the "corn clubs" and "tomato clubs" referred to in the clippings above.

Even though this article has spun out much longer than I intended, I find I have given little or no advice to the boy who is "crazy" to learn a trade. I presume that during my busy life I have learned to be at least tolerably expert in a dozen different trades or occupations. My first trade, perhaps, was gardening, and my good mother taught me that trade. As soon as I was old enough I commenced visiting expert gardeners or truckers; and later I kept in touch with our Ohio Experiment Station. My father was a carpenter, and he taught me how to care for and use carpenter tools. I never had any other training, except, perhaps, from a brother-in-law who was and is an expert house-builder, although he is now 85 years of age. Of course he does not do very much now at carpentry. For many years I was considered an expert in the line of watch-repairing. I first paid a jeweler

$25 for two weeks' instruction. After that I worked perhaps a year under instruction, with, say, enough to support myself. Then I started out for myself, as I have told you in former Home papers. There were two fairly good shops in our town when I started; but in three or four years the other two had gone somewhere else. You may be sure I worked early and late. I rarely disappointed a customer. When my health failed from being too much indoors I went back to the gardening of my childhood, and to chickens, and, later on, bees. My ambition was to get clear up to the head of the class as fast as possible, no matter *what* I undertook. There are now countless periodicals devoted to every trade and occupation; and through all my life I have availed myself of these helps. With the experience you have had in carpentry with your neighbor as mentioned, I see no reason why you cannot speedily become a good carpenter without any special help from anybody. May God give you faith and skill and energy while you read over once more the two texts I have placed at the head of this article.

HIGH-PRESSURE GARDENING

OUR FLORIDA GARDEN TOWARD THE LAST OF APRIL.

Before we go back to our Ohio home I want to take the good friends who read GLEANINGS through our garden as we take visitors almost every day. I say *we,* because when there are women callers Mrs. Root usually goes along also.

I have told you about the mulberries so much I need not repeat it; but this year we have a *strawberry-bed* also; and when Mrs. Root makes a pie or shortcake now, she adds strawberries, more or less, to the mulberries; and in this way we think both are improved. Right in front of the mulberries there are six rose-bushes that cost only 15 or 20 cts. each at Reasoner Brothers' nursery; and although they haven't been out over six or eight weeks we have now a great profusion of roses that would compare with those in the city florists' show-windows. Every morning for weeks past we have had roses galore to give neighbors and visitors; and finer roses I do believe than I ever saw before. The collards I have spoken of are now immense, and we are pulling off the lower leaves for the chickens every few days, and it only seems to make them grow better. I spoke of some transplanted onions where I used guano. Well, one row 40 feet long gave 100 onions averaging over ½ lb. each. We put three in a bunch, and they went off quick at a nickel. You can figure up how much an acre would bring at this figure. If we could wait to have them mature they might bring even more money.



The potatoes that grew in six weeks and the brush that brushed the skins off, instead of paring or scraping. They are the Red Triumph, and one potato is shown only partly "peeled."

Some of them now weigh close to 1 lb. We are still getting $2.00 per bushel for our Red Triumph potatoes. The yield in our garden is about 1 1-3 bushels per square rod, which would be something over 200 bushels per acre. A socialist friend who seems to object because I advise "the great army of unemployed" to "get busy" growing potatoes in the back yard declares potatoes do not bring $2.00 per bushel down here in Florida. Perhaps he hasn't seen such potatoes as we grow, say like these above.

Mr. Burnett, of the firm of Alderman & Burnett, grocers, said in March, "Mr. Root, it is a pity you cannot bring us *50 bushels of such potatoes, instead of only about one* bushel per day." The Cleveland *Plain Dealer* for April 17 quotes "Florida Hast-

ing potatoes, $7.50 per barrel." My melons and squashes during the past winter were mostly a failure, owing to the unusual amount of cold and wet weather; but cabbages seem just suited with the conditions. We are growing them mostly for our chickens.

Helianti is growing tremendously since the warm weather. The tubers I brought from Ohio and planted in November have just started; but half a dozen tubers from the Burgess Seed Co., Allegan, Mich., planted in March, came up at once, and are now a yard high. We hope they will give a bigger crop here than they did in Medina.

Later.—To-day is May 3, and I am here at my Medina home; and it occurs to me that I wish to say something more about the Red Triumph potatoes that I have grown with so much enjoyment down in our Florida home. To get $2 a bushel for the potatoes, of course we have to sort the small or inferior ones. After the sorting they are put on a screen made of one-inch poultry-netting. Those that went through the screen were boiled for the poultry. While they were boiling hot they were taken in a common pail, with the water they were boiled in, to the poultry-yard. With a common fire-shovel they were mashed and chopped up with enough middlings to make a nice dry mash; and the fowls become so fond of them that as soon as they saw me coming with the pail they would run to meet me. Small potatoes, or any potatoes not wanted otherwise, are certainly very profitable for poultry. While feeding our small potatoes we got our best laying of eggs.

Now, I have something more to tell you about small potatoes. Those that did not go through the screen, and were too small to be saved for seed, are used as follows: I made a little basket of wire cloth to hold the potatoes while they were being baked in the oven. The basket kept them from rolling about, and made it easy to get them in and out of the oven. Then they were baked until, when squeezed, they would pop open like an egg. Of course the outside was somewhat charred; but you know charcoal is advertised as a valuable medicine; and I suppose you know, also, that Terry, Wiley, and others have been telling us that not only should wheat be eaten whole as God made it, but that the peeling of the potato contains valuable salts necessary for good health that we cannot well get otherwise. Now, when the roasted potatoes are smoking hot I crush them and drop them into a bowl such as we commonly use for oysters. When the bowl is full, or nearly so, I sprinkle on some salt and pour on some milk. It seems to me I shall never tire of these roasted potatoes. They agree with my digestion better than anything else; and I feel sure they are a very good substitute for meat, with milk taken with them. Who is there among you who has not had fun in roasting little potatoes outdoors in the fire when you were kids? Perhaps old potatoes would not seem just as luscious; but when you come to eating new potatoes again, just try what I have recommended in the above. It is another short cut "from producer to consumer."*

For the first time during the past winter we have had a strawberry-bed of our own; and those raised beds I have told you about, in the Florida soil, seem to be just the thing for strawberries. We have had strawberries for two or three months—all we could use, grown in our own garden.

Our feterita plants, when we left, had made such a growth during the recent warm weather in Florida that I could stretch some of the leaves up almost as high as my head. One single grain produced from six to twelve stalks; and the plants for green stuff alone, for all domestic animals, including chickens, is worth more than almost any other plant I know of. A plant grown considerably in Florida called "chicken corn" very much resembles it, but the grains are smaller. Another plant called Egyptian wheat (or shallu), although it was only a foot high when I left, so far very much resembles feterita. All three belong to the non-saccharine sorghums.

THE SPINELESS CACTUS.

Last fall (p. 828, Oct. 15) I had quite a little to say about spineless cactus. Some time in December I got half a dozen "slabs" of the Reasoner Brothers. I planted the slabs according to directions, and watched them all winter, anxious to see a bud starting; but we had so much cold wet weather that I did not see any start until about April 1. From that time on they made a most amazing growth. When I left there, one plant had five leaves, each one fully as large as my hand. The growth was so rapid that I could see a difference each morning, and another difference in size when night time came. My good friend Henry Borcher, of Laredo, Texas, also sent me half a dozen slabs of the wild spineless cactus that grows in Mexico. These, although planted later than the others, took a start during the

* Since the above was put in type I find the following from our good friend T. B. Terry, in the *Practical Farmer:* "One of the best authorities in the world tells us that a pound of baked potato is equivalent in total nutritive value to one pound of chicken, or eight eggs, or seven ounces of bread, etc."

middle of April, and were making new leaves or slabs about as rapidly as the others. The Burbank Company claim that the fruit-bearing cactus is a different variety from that which bears just slabs for feeding domestic animals. But the Government bulletin in regard to the spineless cactus seems to insist that they are *all* fruit-bearing, more or less; and now a nurseryman in the northern part of Florida says he has *ten* different kinds, some partly fruit-bearing and some not. The prices are from 60 cents *a leaf* up to $5 a leaf. Nobody sells cactus *plants*. They sell only the leaves, which they call "slabs." Well, as it seems to devolve on *me* to test these wonderful novelties (?) I sent for a 60-cent slab, and also for one of the fruit-bearing slabs, which cost $1.75. Now, I did not pay $1.75 for a *plant*, mind you. I paid the money for only a single leaf, and not a very large leaf at that. Why should anybody pay $5 for just one *leaf* from a plant, do you ask? Well, this plant (so he says) bears fruit as large as oranges, and more delicious; and the vender of this spineless cactus tells a story about a doctor in Jacksonville who purchased one slab, and in just ten months it had produced *47 slabs* like the original. The Jacksonville *Times-Union* gives a picture of the plant with its 47 slabs or leaves. Judging from the rapidity with which spineless cactus grows in my Florida garden I can readily believe the thing is possible. Years ago while wandering in a thicket in Osprey—the island where I had my bees—I found a single cactus plant that gave me a little pailful of very nice fruit. I have not seen any of the large fruit; but my friend Borcher, whom I have mentioned, when sending me the cactus slabs sent me also some cakes of a confection made from the juice of the cactus fruit; and at my request he investigated in regard to this confection, and he says it is made from the juice alone of the cactus fruit without any sugar whatever being added. It makes a very nice substitute for a chocolate candy. When you come around to visit me and to go through my Florida garden I will give you a taste of the cactus confection, even if I should not have some *fruit* to treat my friends and visitors.

Speaking about fruit, let me refer again to that tree I have mentioned, the papaya. It gave us five beautiful fruits during the past winter. The largest was 22 inches round and 18 inches long. It looked like a huge watermelon before it turned yellow. It was big enough so that we had all we could use ourselves for several days, besides giving some to the neighbors and the visitors who happened along about that time. Reference to this tree will be found on page 298, April 1. We saved the seed from this "big melon;" and if you will mention it when writing us I will send you a few to test. Of course the tree will not stand frost. I have grown them here in Ohio by starting the seeds in the greenhouse, almost as high as my head, but they did not bear any fruit.



PAPAYA CARRISSA, THE TREE THAT BEARS "MUSKMELONS."

One of our visitors, a beekeeper, had a small kodak with him; and although it was a windy day he succeeded in getting the picture above. The boxes standing near the trunk were to support the largest fruit. To prevent abrasion when the wind blew I placed a folded cloth on the scaffolding to support the fruit. See description, page 298, April 1.

Speaking of seeds reminds me that I owe some of you an apology. You will remember what I have said about the Burbank Rainbow corn. We took some of the corn down to Florida and planted a row. To my surprise only about half of the stalks in the row showed the rainbow colors and variegation. Then I remembered that our row of Rainbow corn here in Ohio was but a little way off from our other sweet corn, and the bees had produced cross-fertilization; so the seeds we have been sending to

our friends may not all show the beautiful stripes of so many colors. As we have quite a little left of our own growing, and some more from the good lady in California who sent us several ears by mail, I think I can give all applicants from this time on five grains each instead of three, as mentioned last fall.

Below I give the letter from the kind lady who sent us the Rainbow corn:

Mr. Root:—I am sending you by this mail two ears of Rainbow (Burbank's) corn that I raised here this year—one yellow and one red ear. I was the only one here who had it (by the way, I got it from John Lewis Childs) in these parts, and all who saw it thought it beautiful. It was over five feet tall, and some had red silk that was lovely. That is the kind that had the red ears; but the seeds I planted were all yellow. I hope this will reach you safely, and that it will grow as well for you as it did for us; and I thank you for telling us how good it is to eat. I hope to try it myself next year. You see the corn-worms had sampled it. They get in all the corn here.

Sunland, Cal., Dec. 25. MRS. P. BAILEY.

HEALTH NOTES

THE DANA FOOD-CHOPPER, AND A SAMPLE OF THE WAY SOME PEOPLE DO BUSINESS.

Mr. Root:—Some time ago in your department you gave a notice concerning a machine called the Dana food-chopper. I sent to Williams & Co., as directed, and received one by express from them. When I opened it the part used for grinding small grains, etc., was broken. The Williams Co. stated that the chopper they sent me was the only or last one they had in stock. They promised to send the chopper for $1.25 prepaid. Instead they sent it collect. The express was 60 cents. Since Williams & Co. said the chopper sent me was the last in stock I wrote direct to the Dana Mfg. Co., Cincinnati, to have the broken part replaced. I enclose herewith the answer I received. It appears that for several years this food-chopper has not even been manufactured, and that no parts are available. I was rather disappointed. Now, I haven't written this to complain, but only to show you exactly how the matter went with me. Now, Mr. Root, I'll tell you what we want. We should much like some little tool that we could use to grind grains with for our own use, such as breakfast foods, etc. If you know of any such tool, please give us the name and address of the firm handling it, or the name of the manufacturers. ISAAC D. KREISS.

Escondido, Cal., April 27.

Below is the letter referred to:

Isaac D. Kreiss:—Your favor of the 6th, addressed to The Dana Mfg. Co., and calling for parts for Dana food-chopper, has been forwarded to us inasmuch as we have purchased their entire business. As the manufacture of the Dana food-chopper was discontinued some years ago, and none of the parts are now obtainable, we regret our inability to assist you in the matter.

THE PEERLESS FREEZER COMPANY.

Winchendon, Mass., April 21.

We give the above in order that none of the friends may have a similar experience. We have one of the little food-choppers, and it does the work nicely, and runs easily; but Mrs. Root has just complained that there is one part of the machine that is quite difficult to clean after grinding certain kinds of food. Sears, Roebuck & Co., Chicago, advertise an implement made in several different sizes. The smallest size is only 65 cents; and whatever *they* sell can be returned at their expense if it does not give satisfaction.

Now, here is some good news—at least it seems so to me—for the good brother who writes us, and everybody else, for that matter. The new cereal, feterita, does not need any grinding—in fact, we like it better without grinding. You can grow it in your garden anywhere—yes, even if you have a long severe drouth. When the grains are sufficiently mature you can pound out the grain with very little trouble (for I have recently done that very thing), and cook it without any grinding; and I think you will agree with Mrs. Root, myself, and all the neighbors, that it is ahead of any other cereal, especially if eaten with a little butter and good honey, with a bowl of milk near by. If anybody else has been disappointed in the Dana food-chopper, and will let me know, I will try to make it good.

GOD'S KINGDOM COMING.

We clip the following from that up-to-date periodical the *Union Signal:*

BEER-DRINKING CAUSES ACCIDENTS.

The Western Electric Plant of Chicago forbids its workingmen bringing beer upon the grounds. Why?

Because it was noticed that a large number of accidents occurred uniformly after lunch, and in almost every case the victim of the accident had taken beer with his lunch.

TOTAL ABSTINENCE DEMANDED; EIGHTY-EIGHT PER CENT OF THE MANUFACTURERS OF THE UNITED STATES DEMAND TOTAL ABSTINENCE OF THEIR WORKMEN.

Sickness is always more fatal with beer-drinkers, and accidents are usually fatal to them.

About one million railroad men in this country have to be total abstainers from beer and all other intoxicating liquors.

SALOONS IN ARIZONA; THEIR LAST DAY.

To-day is the last day for the saloons, and oh how glad I am! GLEANINGS can well claim its share of the credits for helping to make Arizona dry. Without woman suffrage we could never have accomplished so much good. Mrs. Riggs and I are feeling so good about our statewide prohibition that we are trying to feed more hungry tramps than anybody else in town; but everybody in Bowie is feeding them, I am glad to say. It certainly is a blessing to be in this world to do all the good we can. T. J. RIGGS.

Bowie, Ariz., Dec. 31.

Vol. XLIII JUNE 1, 1915 No. 11

Gleanings in Bee Culture



Who's Afraid?

Photographed by Dr. E. F. Bigelow.

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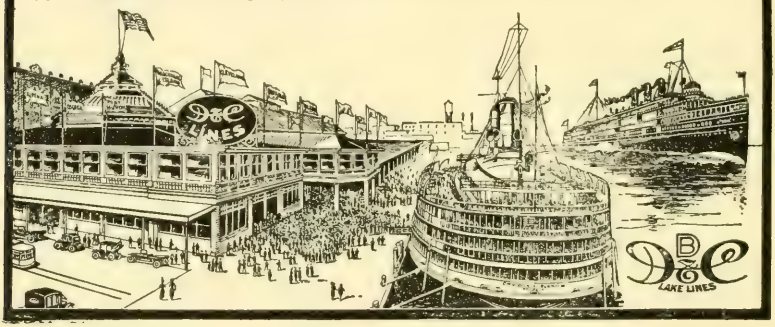
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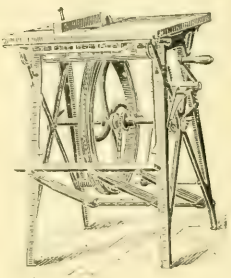
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Gleanings in Bee Culture

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VOL. XLIII. JUNE 1, 1915 NO. 11

EDITORIALS

The first car of bees from Virginia this season arrived May 21. Notwithstanding a large percentage of the colonies were strong, they all arrived in most excellent condition. It is the best shipment, in point of quality and quantity, we ever received. There will be one more car from Texas, and another from Virginia.

Failure of the Tupelo Crop of Honey in Northern Florida

We have received a letter from A. B. Marchant at Sumatra, Florida, stating that the tupelo that is usually regarded as a dependable crop year in and year out was a complete failure. A heavy storm lasting six days entirely destroyed the bloom.

Bumblebees Wanted

Dr. Burton N. Gates, of the Massachusetts Agricultural College, desires to get a number of specimens of bumblebees that have been caught in the act of entering a hive or that are found about hives. The purpose of this is to enable one of his students to make a study of the behavior of bumblebees in relation to hives. All who have observed bumblebees, or what looks like them, about hives, would be conferring a favor on Dr. Gates if they would send him a specimen carefully packed in cotton, and shipped in a small box, together with a letter giving some information as to where the bumblebee was found—and name and address of the sender.

A Honey Journal

The former secretary of the National, Mr. Geo. W. Williams, of Redkey, Ind., recognizing that honey has not received its fair share of attention on the part of the consuming public, and with the view of pushing its sale, is about to publish a new bee paper entitled *The Booster*. Mr. Williams will confine himself to the matter of finding a market for honey; and, as the name of his paper indicates, boosting prices. There is a large and important field here, and we wish our new paper success.

Sixty lbs. Net of Honey in Square Cans

Now that the season is close at hand for putting up extracted honey, we believe the following from one of our correspondents will be very timely:

There has always been a good deal of controversy as to the tare on cans and cases; and if dealers get in the habit of packing 60 lbs. net, this question will be eliminated, and will greatly simplify matters. Another thing, the buying trade now are expecting to have the goods packed in this way; and if it is packed overweight, they do not want to pay for the extra weight.

A Correction

By mistake we credited the very fine picture appearing on our cover for May 1st to Dr. Bigelow, whereas it was sent us by Alexander B. Stevenson, of Edmonds, B. C. The following characteristic letter from Dr. Bigelow, in which he generously explains that the honor is not his, was our first intimation that we had made a mistake. We beg Mr. Stevenson's pardon for giving the credit to some one else.

Some people achieve honors, and others have them thrust upon them. I am in the second class regarding the photograph that appears upon the front cover of your magazine for May 1st. I believe that is the first front cover that has ever borne my name, although your front cover has carried several of my photographs. But here is the unfortunate situation: That is not my photograph.

Edward F. Bigelow.

Arcadia, Sound Beach, Ct., May 8.

When Mr. Stevenson sent the photograph he wrote that his bees are all hybrids, but that he often works with them without wearing a veil. Hybrids certainly have the

reputation of being very vicious, but some hybrids are as gentle as any pure Italians.

Our cover for this issue is the picture sent us by Dr. Bigelow which is referred to above. Dr. Bigelow writes that neither of the young people had ever handled bees before, and their experience on this occasion was therefore quite a revelation.

A Good Tool for the Apiary

It is not often that we give an editorial boost to any article advertised in our advertising columns; and when we do, it is because it has extraordinary merit. In this case we refer to the German scythe advertised by the Marugg Co., Tracy City, Tenn. The editor sent and got one of these, and found it so far superior to the old-style regulation style of scythe usually sold on the market, and so much better for mowing around beehives on account of its sharp point, that we believe we are doing our readers real service by mentioning it. It is very light, and seems to have a "swing" about it that makes mowing a real pleasure. The blade is almost as thin as paper, and for that reason it is easy to keep sharp. We have several of the old-style scythes about Rootville; but this German blade is preferred by all, on account of its splendid "execution."

Spreading Brood, Once More

In this issue, in Stray Straws, page 435, Dr. Miller and the editor have a little further discussion on this subject. The sage of Marengo believes that the practice should always be discouraged—at least he does not know of any time when *he* can do it to advantage. On the other hand, in this issue, page 436, Wesley Foster, in his department, says "spreading brood need not be done till the middle of May." But he adds, "It must be done with care." There is an admission on the part of Mr. Foster that it can be practiced to advantage even in Colorado. We in our first editorial, page 345, said there might be times when it would do no harm. Evidently locality has a bearing on the question; and it is evident, too, that the editor has been taking a middle ground between the views and practices of two of our leading beekeepers.

Clover Prospects

The recent and continuous rains all over the clover belt have started up the clovers everywhere. In some localities these rains have come a little late; in others, in just the nick of time; in others they will insure a bumper crop—more particularly in northern localities. In all localities, owing to recent cool weather, clover will be from two to three weeks late. The winter-killing in some places, and the hot April drouth in others, gave the clovers a setback. What these recent rains will yet do it is impossible just now to give any accurate forecast; but there will be a crop of clover honey in some localities at least, and some clover honey in nearly all localities.

California Honey Prospects

Referring to this, our manager at Los Angeles writes:

> The beekeepers of California have had very bad weather for a month, with the exception of some very helpful rains. Nearly everything else has gone wrong—strong winds, fog, cold, and even light frosts have occurred. Sage is not so far advanced but that, with warm weather, a very good crop of sage honey will be produced. . . . The orange-honey crop will be very light indeed.

Helping the Government to Guess

Data upon which to base an estimate of the summer's honey crop, and the prices which will result, are being collected by the Bureau of Crop Estimates of the U. S. Department of Agriculture. The second annual spring inquiry was placed in the hands of beekeepers known to the Bureau in April, and should have been mailed May 1.

The queries concern not only the condition of the beekeepers' own apiary, but his estimate of the number of bees in the locality, and their fate during the winter. From the returns on the question as to what caused the death of colonies during the winter, much material ought to be secured of value in preparing for next winter.

That no beekeeper should neglect filling out such questionairres as these goes without saying. Upon the accuracy of these returns depends the value of the July estimate of probable production, and upon the crop estimate beekeepers will rely to some extent for their marketing plans. By cooperating to his best ability the beekeeper can easiest serve his own interest.

Poisoning Bees by the Use of Arsenates; Another Angle to the Discussion

In this issue, page 436, Wesley Foster refers to our editorial on page 390, wherein Professor Woodworth, Horticultural Commissioner at Pejario Valley, California, gave it as his opinion that the bees are not poisoned by spraying-liquids. It will be remembered that a colony of bees was plac-

ed in the center of one of these big orchards in California. The trees in the immediate vicinity of the hive were fairly doused with the arsenide of zinc. Mr. Foster does not think the evidence is conclusive that the bees in that one colony gathered any of the poison, as the profusion of bloom would be so immense that the bees that were flying could go far enough away to get nectar from blossoms not sprayed.

He also says that as soon as the bees on the western slope of Colorado were removed from the districts where the spraying liquids fall on the cover crops under the trees the losses immediately ceased. This fact is somewhat significant.

We understand that the national Government is working on this proposition to determine whether the bees are killed by the spraying-liquids used on fruit-trees. We shall await with interest that report.

California vs. Canada; Why Queens that Lay Every Month in the Year are Superseded Quicker than those in the North that have Six Months of Rest

On page 440 Mr. Byer is surprised that the majority of Mr. Chadwick's colonies containing two-year-old queens degenerated into laying workers. Perhaps we can explain the situation. Mr. Chadwick is a mail-carrier for Uncle Sam. His bee and garden work he has to do between times. His outyard is located some four or five miles from the home yard. As he does most of the work himself, or did up to this season, it is easy to see something might happen among his bees.

Mr. Byer probably does not take into consideration the difference between his own locality and that of southern California. Mr. Chadwick's bees can fly nearly every month in the year; and the result is, his queens will be laying every month in the year; and two-year-old queens in California are almost the equivalent of four-year-old queens in Canada, where the seasons are only half as long. A queen that lays only four or five months in the year, or six or seven months at the most, can recuperate, where a queen that is laying almost every month in the year has no such opportunity.

In our migratory beekeeping in the Southland we have discovered that a queen that is continually on the job will play out much sooner than those that have a long winter's sleep or rest. These facts will explain why a two-year-old queen may be followed in California by a laying worker. Things happen pretty rapidly in California. It is possible, however, that Mr. Chadwick has a sprinkling of Cyprian or Holy Land bees. These bees will quickly degenerate into laying workers.

The Distribution of the Bee and Fruit Industries in the United States; a Remarkable Coincidence

Green's *Fruit-grower* is sending out a map furnished by the Chamber of Commerce of the United States, showing the relative amount of fruit grown in each state. The quantity produced in each state is shown by circles of various sizes. These circles are then subdivided by triangular sections in shape like pieces of pie big and little. Apple-growing (as shown by the big "pieces of pie") represents on the average about half of all the fruit if we leave out California and Florida. Strawberries, grapes, plums, and peaches each make a "piece of pie," to carry out the figure. In Florida, as would naturally be expected, oranges represent 90 per cent of all the fruit grown.

But the showing of this map that is most interesting to beekeepers is the fact that, where fruit-growing is shown by a large circle, beekeeping is also well represented. In other words, the states having the largest circles are also big bee and honey states as our records show. For example, California has the largest circle, and, as is well known, beekeeping is an important industry there. Then come New York, Michigan, Pennsylvania, Missouri, Ohio, Iowa, and Washington. In all the states mentioned, beekeeping as an industry is important in about the order given; and while, of course, it does not begin to compare in volume and size with the fruit-growing industry, a careful comparison of the map shows that beekeeping and fruit-growing go hand in hand. While this does not prove that one is directly dependent on the other, it does show that conditions that are favorable for the one industry are also favorable for the other. The great Creator had a *purpose* when he made it possible for the two to thrive side by side. In that "purpose" there is implied a recognition of the dependence of the fruit-growing industry on the bees.

Practically the only exception that we find between the relation of beekeeping to the fruit business is in Texas. Texas is probably second in importance in the production of honey in the United States, and yet it is almost at the bottom of the list in the production of fruit. This disparity is

explained by the fact that Texas produces large amounts of honey from plants and trees grown in the semi-arid districts. When water is once let on to these lands, they will at once grow fruit. Then Texas will come forward as one of the great fruit-growing states of the Union.

Serious Results from Beestings; what Precautions to Take

Mr. Chadwick, in this issue, page 437, in his department, tells of an experience that "came near being a tragedy" in his home. His wife, always more or less susceptible to the effects of beesting poison, was, on the occasion mentioned, stung by a bee just back of the ear (a bad place by the way). As she had been stung several times prior to this, without any serious results, she had not taken pains to keep away from the bees. But this time the sting had more than its old-time effects. A doctor was called, and soon she was out of danger. She was left in a weakened condition, however, and remained in bed for the rest of the day. This was very wise, as absolute quiet —at least no bodily exertion—should follow after a case of severe stinging.

We once had a case where a young man was stung a great many times. He became dizzy, and broke out in blotches. He was given a heart stimulant, and apparently revived. He took a tepid bath, and felt so much better that he said he did not see why he could not go back to work. After he had got his blood warmed up he had a fainting-spell, became unconscious, and his heart action had all but stopped. Fortunately we were at hand with an automobile, and rushed him up to the doctor at the limit of its speed. The great volumes of fresh air partly revived him, but it was evident he was in a serious condition. The doctor gave him a heart stimulant, and directed us to take him to a quiet place where he could get fresh air. We put a small electric fan in front of his face, and in a short time he was revived enough so he could talk to his friends.

The doctor afterward, in speaking of the incident, made this statement—that after one has been stung, or has received a general shock like this on the heart, the patient should be quiet for several hours. It was very important also that he do no work requiring bodily exertion for *several days.* After about two weeks we took this man to a specialist in Cleveland, and he reported he was in as good condition as ever. But it was evident that he had received a temporary shock.

Two or three times when we have published accounts of severe stings, some of our subscribers have come back at us that we should suppress the facts. We do not believe in anything of the kind. Beekeepers and others should be warned. Fortunately there is not one in a hundred thousand who is seriously affected by stings. Indeed, we may say we hear of hardly one in a million. All the newspapers in the country put together do not report one case of severe stinging in a year, in a population of about a hundred million. This shows that the average person has little to fear from one sting.

Our junior editor, Mr. H. H. Root, was at one time very susceptible to the effects of a single sting. He, too, would have fainting-spells and attacks of dizziness. On several occasions we were greatly alarmed, but he always managed to pull through. He had an ambition to follow in the footsteps of his father and brother. The last mentioned suggested the scheme of gradual immunization. This was accomplished as follows:

A bee was picked off a comb, and pressed gently against his hand. Just the moment that the sting pricked the skin, and before any considerable amount of poison could get into the wound, the bee and the sting were quickly removed. This was repeated a week afterward. At the end of four or five weeks there was an uncomfortable itching sensation. The hypodermic injections were then discontinued for several months and then resumed again. Afterward the patient got so he could take two sting pricks a week, then three, and finally it was discovered he could take the full effects of a sting without any inconvenience. It was not long before he went among the bees, and handled them as did his older brother. On one occasion when we went out together with a load of bees one hive was spilled overboard, releasing a lot of bees. The two of us each got something like thirty stings; and, remarkable to relate, the younger brother experienced no more harm than the older brother. He is to-day as immune as any of us.

To provide against a possible recurrence we suggest that Mr. Chadwick try out the same scheme on his wife. He should be very careful, however, to see that the first sting prick is *only* a prick, and that all subsequent sting pricks for a considerable time should merely pierce the skin. Suitable tweezers should be provided so that the poison-sac will never be squeezed in removing the sting.

STRAY STRAWS

C. C. Miller Marengo, Ill.



H. P. KIRBY, when bee-hunting, takes vinegar to dilute honey, p. 409. Why vinegar rather than water?

W. C. MOLLETT, in comparing Italians with blacks, p. 413, you omitted one marked trait of superiority in Italians. A weak colony of Italians will clean out the bee-moth where a weak colony of blacks will give up and die.

G. M. DOOLITTLE, p. 398, testifies "from many experiments and much careful observation," that queenless bees select for queen-rearing larvæ about 36 hours old. Thanks, friend Doolittle, for your expert testimony against the libel that in their haste for a new sovereign they choose larvæ too old to make a good queen.

I WONDER how many beekeepers take care that no young queen be reared except from the best stock. And then, of those who are thus painstaking, I wonder how many pay any attention to the drones. Yet we are told that the drone is just as important as the queen. It isn't such a very hard matter to encourage drones in a few of the best colonies, suppressing them in all others.

A SEVERE slump has taken place in the market value of Chicago's 7152 saloon licenses. A year ago they brought $2500 to $2800. This year, 89 licenses came into the possession of Judge Landis through the failure of The Tosetti Brewing Co., and he could get no bid higher than $1200 for a license. It would be hard to say just how much this is due to the fact that a great dry campaign is to be waged in Chicago, with Billy Sunday in the thick of it. [What is taking place in Chicago is taking place in many other cities and towns in the United States. The saloon crowd is panic-stricken, and on the run.—ED.]

THAT vigorous editorial protest against spreading brood, p. 345, would do good service if it were printed each spring, for each spring a fresh lot of beginners come into action, and one of the first notions a beginner gets into his noddle is that a sure way to hurry up brood-rearing is to shove an empty comb between two combs of brood. I think, however, that you are making a pretty liberal concession, Mr. Editor, when you say that under some circumstances "it may do some good." I don't dare to say that my experience should be a guide for every one, but I will say that in my locality and with my bees brood can be spread in spring always and only at a loss. With plenty of honey in the hive, my bees always have all the brood they can cover, as soon as they get fairly started at brood-rearing; and pray tell me how spreading can make them cover more. Doesn't any good queen anywhere have all the brood in spring her bees can cover? [We do not know but that we agree with you; but if you will look at the editorial again we think you will see that the only time when spreading brood might do no harm, or might be an advantage in the spring, was during a spell of continuously hot weather. If it did not turn cold shortly after, it might do no harm. Generally speaking, the beginner should let the spreading of brood alone. Bees may not know much, but they know a whole lot more than their owner who knows more than he ought to know.—ED.]

POLLEN is generally understood to be found in honey, at least a few grains here and there. It is doubtful, however, whether all beekeepers understand to what extent this is the case. The English pollen-expert, Mr. G. Hayes, says, *British Bee Journal*, 117, "You will remember that the pollen-grains are distributed all through the honey, and you can scarcely put in a needle-point without taking out pollen-grains." [The presence or absence of pollen in any sample of suspected honey goes a long way toward determining whether the honey is pure or impure. For example, invert sugar has many of the characteristics of pure honey. At one time certain unscrupulous venders thought they could adulterate honey with invert sugar, and escape detection; but they found out their mistake, for the chemists found that their adulterated samples contained too small an amount of nitrogenous matter—pollen.

The fact that there is always some pollen in honey explains why bees will breed up on it better than they will on sugar syrup or any other artificial product. This also explains why colonies in the spring that have a good supply of *natural* stores will be stronger in the spring than colonies having only sugar stores. The former will breed up on honey when they could not do so on sugar; hence the relative difference in strength in the spring between the two sets of colonies. But that does not argue that sugar syrup is not better as a pure wintering food. If with the sugar stores there were combs of natural pollen the difference might not be so marked.—ED.]

Beekeeping Among the Rockies

Wesley Foster, Boulder, Colorado.



HONEY PROSPECTS.

Bees came through the winter with not an excessive loss in any districts of the Rocky Mountain region. The cold backward spring was not very conducive to building up early, and some weak colonies died during the long-continued cold weather in March. However, during April breeding was done, and the weak colonies with good queens certainly made a good report of themselves.

Bees are not swarming in May this year as was the case last year. Early in May the Rocky Mountain region was visited by freezing weather that ruined a large proportion of the fruit prospects in western Colorado and elsewhere. At the time of this freeze the alfalfa was up nearly one foot, and much of the fruit was in full bloom; bees were preparing to swarm, and a number of colonies had swarmed in Delta County. The freeze was a very serious thing for the fruit men, and put back the honey season several weeks, no doubt.

There has been such a generous amount of rainfall this spring that it is doubtful whether the shortage of irrigation water will be felt. The reservoirs are now fuller than it was hoped they could be, so that there should be water enough in most districts for the late irrigation.

The precipitation so far this year is 2½ inches above normal; and if it keeps on raining we shall have plenty of moisture.

Sweet clover is thicker this year than last; and while it was frozen down pretty badly it will recover.

DRIFTING BEES.

Bees cut up some queer capers when a large number of colonies are placed in one location. Recently we were preparing 800 colonies for shipment; and to facilitate loading, about four hundred were placed close to the switch. Entrances were contracted prior to moving, and the hives were faced east and south, so that as little confusion would result as possible.

When the apiary was inspected the opening of the hives caused more drifting. Some drifting had been going on all the time until a number of hives were simply running over with bees while others had hardly enough to care for their brood. Almost wholesale distribution of the bees had to be done, and many weak colonies were placed on the stands of the strong ones. The bees were necessarily very cross from this mixing-up; but the bees were finally pretty well distributed.

In order to prevent drifting, do not place colonies too close together; and avoid long straight rows all faced the same way. Do not release the bees so they rush out of the hives all at once (as they do when overheated). After moving an apiary it is best not to examine the hives if any drifting is going on, as the opening seems to aggravate the trouble more.

BUILDING UP COLONIES FOR THE FLOW.

It is certainly surprising how rapidly a very weak colony will build up if it has a young vigorous queen, plenty of honey, warm weather, and abundant pollen.

Proportionately a weak colony will build up faster than an average or a strong colony. There is such a thing as having a colony too strong early in the season. If you have, or can get, extra queens at the right time, increase can be made from the strong colonies without impairing the honey crop. It is all a matter of understanding how to take advantage of the season and its eccentricities.

In western Colorado I saw swarming the latter part of April. On a Thursday bees were swarming. Friday it was freezing, and Saturday it snowed. Such changes in the weather are hard on bees, especially swarms. Old colonies can protect their brood in pretty cold weather, as they are pretty populous at this time of the year.

In all that a beekeeper does he should work cautiously in the spring. Spreading brood need not be done till the middle of May, and then it must be done with care. Bees will spread their brood if they have abundant pollen and fresh nectar from fruit bloom and dandelions.

Most of our beekeepers are now busy equalizing stores, inspecting their apiaries, and getting things in shape for the honey-flow that is not due ordinarily till June 15 to July 1. Our season is now late, and July 1 will come before sweet clover blooms.

IS THIS TRUE SCIENTIFIC METHOD?

There has been so much said about spray poisoning that it may be out of place to say more; but the opinion of Professor Woodworth, that bees are not poisoned by spraying with arsenite of zinc, and that bees are not poisoned by arsenate of lead, is worth an answer.

Professor Woodworth should conduct his experiment with a hundred colonies instead of one. It should also be remembered that

Continued on page 439.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



We welcome the "Dixie Bee," and would suggest that it be the queen of the department pages.

* * *

The future at this date is all guesswork. The button-sage bloom will be increased but little if any. Whether the rain will cause a heavier flow of nectar from the limited amount of bloom cannot be foretold. There will not be more than 50 per cent of a normal bloom, which will be sufficient if it yields well. The white sage never looked better, and the same is true of the wild alfalfa. I am expecting a slow flow from all these sources, and a prolonged season, but what the net results will be I cannot say.

* * *

Beautiful sunny southern California! Yes! No! Well, I guess not so you could notice it during the past three weeks (May 8). It is doubtful if worse weather has ever visited this section than that we have just had. On April 13 a storm struck here that did not entirely abate until May 8. Cold, hail, snow, heavy rain, and very little sunshine has been the program. During this period the temperature reached the lowest point of any day in May for 34 years. For three hours on April 30 my Tremont apiary was in the midst of a heavy snowstorm. Bees were driven out of the supers, and forced to cluster for protection. In many localities not in the orange districts feeding became necessary, and the entire bee business came to a sudden standstill. The best part of the orange season passed under these conditions, with the finest chance for a record-breaking orange-honey crop at hand. More than 5½ inches of rain fell in this locality.

* * *

The past three weeks has afforded an opportunity to study the effect of bad-weather conditions on field bees, and I have improved the time with experiments. I am better satisfied now than ever before that bees will not stand the exposure many think they will. During the time of these experiments the temperature ranged between 40 and 50 degrees, and showers were frequent, with but very little intervening sunshine; but we were not without sunshine to an extent that thousands of bees were enticed to the field, only to be the victims of cold rain. I proved to my entire satisfaction that nine out of ten bees will die if they are wet during the day and not able to dry or warm up before the next day. In one experiment I watched the actions of a small bunch which had fallen to the ground when a swarm had been shaken into a basket during a shower. This bunch contained perhaps a hundred bees. The day they were rained upon afforded them no opportunity to return to the hive; but on the other hand they were wet several times during the day and night. At the end of the second day the entire outer layer of bees had died. They were removed from the cluster, after which more rain fell, the second day more had died. Out of the entire number not one bee was alive at the end of the third day.

Some were carried in a basket and set indoors. At the end of the third day most of those had died. I do not believe that the mortality rate in bees was ever heavier than during the past three weeks. I had one colony of bees which were working in a shallow super, drawing combs, that were not able to muster force sufficient to return to the super to-day (May 11), to continue comb-building, although the day has been a hot one. Fifteen dead bees were counted on the sidewalk within a distance of two blocks. Wetting in cold weather is fatal to bee life.

* * *

A bee-sting has always been looked upon by me as a painful little joke, and I have wondered many times at some of the stories written of bee-stings causing the death of persons. That day is over with me. On May 4 the effects of a sting came near ending in a tragedy, and I wish here to warn those who are poisoned severely by their stings to avoid them if possible. I had just come home in dinner on the date mentioned, and my wife came to the back steps to greet me. Before she was aware of any danger a bee (without warning) stung her on the head just above and a little back of the ear. The suffering was intense from the very first. I took her into the house, removed the sting, and applied some ammonia, but to no avail, for she began to turn white, and coughed violently. This was followed by vomiting, loss of sight, and turning purple. Meantime I saw danger, and called a physician.

In thirty minutes from the time she was stung the doctor was present. The first move he made was to test the pulse. Then

Continued on page 459

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



That was an interesting article on page 242, March 15, "The Alexander Method Adjusted to a Clover Locality." I think that was just what we had been looking for —some adaptation of this famously successful method to localities dependent on clover. We are likely to try out a plan like this ourselves.

* * *

One evening, about the 27th or 28th of April, the moonlight that flooded our hives and yard seemed deliciously fragrant. "Can honeysuckle be in bloom somewhere around?" we asked, but doubted. But when a neighbor reported next day that our bees threatened to carry her blossoming locust-tree quite away, we understood and rejoiced. That was probably one of the first locusts around here to come out, but now they are in full bloom.

* * *

The reputed effect of patent-medicine advertisements is to make the reader immediately certain that he has some if not all of the symptoms described. And looking at those pictures of foul brood, and reading descriptions of it, makes some of us who are fortunately unfamiliar with it shiver with the wonder if we haven't some combs that look just that way. Is it like measles, bound to come, and the sooner the better? Less difficult, perhaps, while you're small.

* * *

It was such a dry April! Day after day of beautiful warm sunshine, but no rain, no April showers. Our fond hopes of clover were beginning to wither. But then we read in April 15th GLEANINGS, pages 326-7, Mr. Adam Leister's favorable comment on "the very light rainfall for the spring months," with the assurance that "to make up for this we are sure to get an abundance later." And now, May 6, we have just had a splendid life-saving sort of rain, and our hopes are reviving.

* * *

Our neighbors are very kindly disposed toward our bees; but one thing that has proved troublesome until this year was our bees' fondness for the water at one neighbor's pump and hydrant. So this year we followed the suggestion we had seen in the A B C, and put water out for them very early in the spring, when they first began to fly. We salted it slightly, put it in a common Mason jar, laid tiny bits of thin strips of wood across the mouth after filling the jar, inverted a shallow pie-tin over the top, and then, holding the tin with one hand, tipped the whole combination upside down. Later, this one jar proving insufficient, we added another. We fill them every morning when we water the chickens. Watering bees is no more trouble than watering chickens. And it is an interesting sight to see these crude and decidedly amateurish-looking water-arrangements crowded with bees all day. They measure well up to the traditional popularity of watering-resorts. The water-plant arrangement mentioned on page 246, March 15, promises more of artistic effect, and probably we shall try out something along that line next year. Meantime our bees and our neighbors are at peace, and so, therefore, are we.

* * *

ITEMS FOR BEGINNERS.

Please, all you brother and sister beginners, be sure to use full sheets of foundation and wire it. We didn't, at first, and now we are breaking our hearts over a lot of drone comb. We just hadn't paid much attention to the combs before—combs were combs; but now we are putting those poor ones into the supers to let the brood hatch out, then the bees may store what honey in them they can and will, and then goodby to those combs. And we shall have as perfect ones as we can get in the future.

Even if you have only two or three colonies, start right in keeping a record of them. It is a wonderfully good habit, and will be more than worth while. You need not condense your comments as much as the big beekeepers do, either. You have more time than they, and far less experience. Better put down everything you observe in the condition of each hive whenever you examine it, whether you understand that condition or not. Record how much brood and stores each one has, and what you did about it; raised a frame of brood, perhaps, to give the queen more room, and inserted a sheet of foundation in its place. (Though of course, you would not do that except to a strong colony, after settled warm weather had come.)

Of course you are dreadfully worried about robbers. Every time you go through a hive, and then see an exciting number of bees in a vibrating sort of cloud around the entrance, you are convinced that that stand is being robbed. Perhaps it is. Probably it is not, especially if there is a honey-flow on. Since our first direful experience, when we took a quart or two of dead bees from

in front of two hives, we have been as nervous as kittens. Another slight case, but immediately recognized, occurred the first time we went into our bees this spring. But many times since then the signs, superficially observed, have seemed to cry wolf, when there was no wolf. Just a day or two ago, after looking into half a dozen hives, I was loafing around, watching the bees fly (and is there anything more fascinating?), when there—surely that hive was being attacked! And that one! And still another! But a second and more deliberate look showed that the bees were merely playing in the sunshine. I had finished work about one o'clock, and that approaches an hour especially popular for the gambols of the young bees. Drones were among them that day too; and the sound of the happy little things was quite different from the voice of robbing bees.

Later.—Noon, May 8. A child with a white-clover chain about her neck! It must have come!

* * *

Mounting on wings of undaunted desire
Straight through the heart of June's opal and blue,
Bees, how you flash! How you strike out and soar!
Are you daring your dreams to come true?
Daring your dreams! As a flame dares the fire!
They'll come true!
They'll come true!

June in the heart of you, June in the wings!
June in the part of your spirit that sings!
Bees, *are* you spirit? Or breathless desire,
Or the rapture that dares to aspire?
Daring to dream and then daring to do!
They'll come true—
Those brave dreams—
They'll come true!

If all of us had the persistence and the apparently eager zest for effort that the bees show, most of us would come nearer the achievement of our own fair dreams.

BEEKEEPING AMONG THE ROCKIES—Continued from page 436

bees will fly a considerable distance and may not work in the orchards in which they are placed. I believe it has been demonstrated that bees prefer to fly some distance rather than gather nectar close to their hive.

The conditions mentioned by Professor Woodworth were ideal for that colony *not* to be poisoned to any appreciable extent. There was such a profusion of bloom that the bees probably had not one chance in ten of gathering nectar from sprayed bloom. If arsenite of zinc is repulsive to bees it is welcome as a spray liquid, for it is a matter of quite common knowledge that arsenate of lead attracts them. Bees are quite often seen around the spray-tanks. It is possible the bees attempt to utilize the arsenate of lead as a substitute for pollen, or they may be in search of moisture when hovering about the spray-tanks.

The presence of other honey-plants upon which bees may work is an important factor. If alfalfa, sweet clover, alsike, or other clovers were in bloom when spraying is generally done in Colorado, I doubt whether any losses of bees would ever be noticed. All the loss seems to come when the orchards contain the only bloom available.

The only reports I have received of bees dying from poisoning during the past four years have been from commercial-fruit districts, except one or two minor ones. Bees were reported killed by poisoned syrup sprayed upon sugar-beet leaves to kill grasshoppers. I saw bees dying, apparently from the effects of poisoning secured from a pail that had contained sheep-dip liquid. Quite a number of colonies were weakened last year near Denver by the supposed poisonous effect of smelter or city smoke.

The most significant point in this matter is that thousands of colonies of bees have been moved from the orchard districts with success. The trouble ceases when the bees are moved, or very soon thereafter.

BEEKEEPING IN CALIFORNIA—Continued from page 437

he quickly prepared a hypodermic injection to restore the action of the heart, which had by this time become very low. In a few minutes the injection had taken effect, and the danger had passed; but she remained in bed the rest of the day, and for the next three hours I wrung cloths out of hot soda water and applied them to her neck. The weakness from this experience remained with her for a week. Strange to say, the swelling was of little consequence; in fact, it amounted to less than from any sting she has ever had. The physician said that the sting of a bee is as poisonous to her flesh as the bite of a poisonous snake would be to many persons. I certainly do not care ever to see any one suffer to such an extent from a sting again. Mrs. Chadwick was almost heartbroken to think that she must give up helping me with the bees, for recent stings, previous to this one, had led her to think she was becoming immune to their poison.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



An early spring here in Ontario, and all kinds of vegetation, including the clovers, are looking well. The latter part of April was unusually warm for this latitude, and everything came on with a rush. In fact, there was such a rapid growth that we feared late frosts might seriously affect the tender growth. But during the last ten days we have had cool wet weather, and the growth has been held back somewhat. All things considered, this is for the best.

* * *

For the information of Dr. Bruennech. page 245, let me say that I am not "pretending" when the statement is made and can be substantiated that in our Cashel apiary we had a Carniolan queen that lived till her seventh year. She was not at all profitable during the last two years of her life, but was kept as a curiosity to see how long she would live. Her five first years had been so profitable to us that we did not begrudge giving her a full lease of life, even though she was not so capable during the next two. But, as Dr. Bruennech intimates, four years is the limit of most queens according to my observations—in fact, very few from the matter of economy should be kept that long.

* * *

Bees clustering out in April is an unusual experience for us. While little of this was noticed at the apiaries here in York County, the fronts of the winter cases at the north yard were covered with bees in the evenings during the warm spell in April when bees were on soft maple. As a result, many colonies had to be supered at that early date, and the queens at once started laying in the upper stories. With normal spring weather from now on, the majority of the colonies in this yard will have to be relieved of old honey to allow the queens room. While the general verdict is that aster honey granulates rapidly, in this case there is none of the granulation in evidence at this late date, and I never knew bees to winter outside on such a small amount of stores.

* * *

G. M. Doolittle is one of our closest observers; and this being the case I read with much wonder his statement on page 312, April 15, that he had never heard a queen "pipe" except on a comb. The matter is beyond my comprehension when I remember that Mr. Doolittle has been handling queen-bees nearly all his lifetime. Time and time again I have brought a package of queens home and placed it on a sideboard, and the children would soon be listening with interest to the challenging notes from one queen to another. More than that, I have heard them quahking in the box in the postoffice when a number were tied together, and it has been a common thing to have them thus exercising in my pocket on the way home from the postoffice.

* * *

P. C. Chadwick, page 353, says that, among the number of his two-year-old queens that have played out, the majority of such colonies have fertile workers. Another mystery to me, surely! Is it in the strain of bees, or what? While I do not for a moment claim that there is no such thing as fertile workers, yet in our yards their occurrence is rare indeed. And as we do not practice systematic requeening, we have some queens play out too—in fact, far too large a percentage to please me. But in at least 99 cases out of 100, either an old played-out clipped queen will be present, or else a virgin that has been reared too early in spring to get mated. To be perfectly honest in this matter, I cannot say that I am sure of ever having had a genuine case of laying workers. The few times we imagined such was the case, we were not sure but that a small virgin might have been present.

* * *

Recently I received from Mr. Samms, of Mars Hill, N. C., a pail of "chunk" honey of delicious quality and appearance. The source of this honey—basswood—rather surprised me, as we do not generally find basswood honey so far south. I frankly acknowledge that the quality is equal to our own basswood honey, both in color and flavor. By the way, the term "chunk" honey does not appeal to me at all, and I wonder that our southern friends—more particularly those of Texas, where this style of putting honey on the market originated, if I am correct—do not get some more attractive name for honey marketed in this way. From North Carolina we have had samples of three beautiful lots of honey—basswood, locust, and sourwood; and for my own part, at least, the term "southern honey" has a much better sound to me than it did a few years ago. [A large number of the southern producers now favor the better name, "bulk comb" honey.—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



LONG WINTER CONFINEMENT OF BEES.

"Will Mr. Doolittle tell us how long a confinement bees can stand and come out in fairly good shape? My bees were confined to the hive from Nov. 10 to April 15 the past winter, a period of over five months, and as a result I have lost quite heavily. Besides, I have now on hand several colonies which are too weak, through spring dwindling, to be of much use before the buckwheat flow. Did you ever know of anybody having bees confined that long?"

This certainly was a long confinement for the bees. But in going over my old diaries I find that this is not the longest period, for during the winter of 1903 my bees had no flight from October 30, 1903, till April 5, 1904, or during a period of five months and six days. Some of the colonies appeared not to have suffered materially by this long confinement, at the time; but afterward they gave proof that this long holding of their excrement told on their vitality, while none of the colonies wintered on their summer stands were what could be called perfect colonies by the 20th of May. Nearly all had dwindled more or less, while several had died.

After April 5 we had more cold, and snowstorm after snowstorm, followed by clouds and cold winds, so that it was impossible to remove the bees before May 2. This had much to do with the poor results with those wintered on their summer stands, but I do not think it possible that bees can be confined for more than five months on the summer stands, and come out in perfect condition for the summer's work.

On May 2, 1904, the bees were removed from the cellars, those at the out-apiary on the forenoon of that day, and those at home in the afternoon. This gave a confinement for these cellar-wintered bees of three days more than half a year, and, if my memory serves me rightly, a longer period than any that has been recorded up to the present time, which is something worthy of being jotted down.

How did they come out? There were three colonies at the out-apiary short of stores, since they had only about eight pounds each at the start. I expected to feed these from the reserved combs of honey stacked there, but the winter swooped down before I got to it, and I thought I would risk them rather than open the hives to set in combs of honey with the mercury hovering near the zero mark. These three starved, and I find this written in that old diary: "I am ashamed to record the starving of these three colonies, for away back in the eighties I lost a good colony in April from starvation, and at that time declared that should be the only one whose dead bees should accuse me of such wickedness. It is wicked to allow anything which has served me so faithfully to starve." Three other colonies had diarrhea, and died while the rest came out in as good shape as in average years. Those in the special repository at home came out fairly well; but a few of them showed spring dwindling slightly.

When the farmer and I entered the cellar to carry out the bees, the first colony we took showed no signs of life. The hive was set on the cellar bottom, and knocked upon —no response. It was set aside as "dead." As we came to the starved ones they were set on top of this one, and these dead colonies left in the cellar till all were out. The hives had been set in the back part of the cellar, with the entrances toward the wall, in which there is no window. This prevents any light from shining directly in at the entrance. When all were out, the farmer asked me if he should carry out the dead ones and pile them up with the hives of reserved combs. I admitted that he might. All went well till he came to the last one (or what was the first one we took in), when I heard an outcry. I found the bees just fairly boiling out of the hive he was bringing from the cellar. The wet cloth used in removing was hastily thrown over the hive, and it was carried to its stand. And, strange to say, that "dead" colony was the nearest to a perfectly wintered colony I ever had seen or ever have seen since. No dead bees were on the bottom-board, no spotting of things on their first flight, and no dwindling afterward, and that after a confinement of three days over half a year. This colony had not consumed half of the eight pounds of honey the light ones had eaten and died. I had been told in the past of colonies which were so nearly dormant as to be apparently lifeless while in winter quarters; but to see such a thing with my own eyes was something of a "surprise party" to me.

I have pondered over this very much since, and experimented, looking toward bringing the whole apiary up to such a standard of wintering; but as yet, little advancement has been made.

GENERAL CORRESPONDENCE

BUYING AND KEEPING BEES IN LOUISIANA

BY G. FRANK PEASE

Having made up my mind to buy more bees I finally planned an automobile trip south through Indiana, Kentucky, Tennessee, and Alabama for that purpose.

On Dec. 12, 1912, my wife and I started from Battle Creek, Mich. Our load consisted of a camping outfit containing a table, three chairs, stove, box of cooking utensils, grub-box, box of tools, trunk, bedding, tent, canvas cover for auto, two guns, thirty traps, fishing-tackle, four extra tires, and some other necessities. When loaded, the outfit weighed two tons.

We had to change tires thirty-four times between Michigan and Birmingham, Ala. Sixty-inch ruts caused much trouble, for our auto was only fifty-six inches between wheels. A number of times we had to go many miles out of our way (on account of washed-out bridges), leading us often into deep chuck-holes that had to be made with a dash.



A corner of one yard in the spring soon after transferring.

We started on rough frozen ground, and wound up in the clay mud of the southern rainy season. Many times we were in mud above all four hubs, and had to pry up the auto and lay rails to run out on. We crossed nearly one hundred streams. One stream was sixty rods wide, and in two places the water reached the floor of the auto. It was rain, rain, rain, and mud, mud, mud, for days and days.

We coasted a mile in a number of places, and four miles in one place with the engine cut off and brakes set. We had to twist and wind down some hills with bumps that would send the dog clear over against us, and brakes squealing so that if something had broken we would have been dashed many feet over steep embankments.

Most beekeepers (except the few who were up to date) kept their bees in tall gums or hollow logs cut off and set up on rocks. But few bees could be bought at a place, and it would have been hard to buy more than one hundred colonies in any one locality; and it would have been necessary to draw them over rough roads from ten to twenty miles to get them together in hives that would hardly hold together.

One man having a number of colonies claimed he could take twelve worker bees and one drone and make a good swarm in three weeks; and yet he would sell no colo-



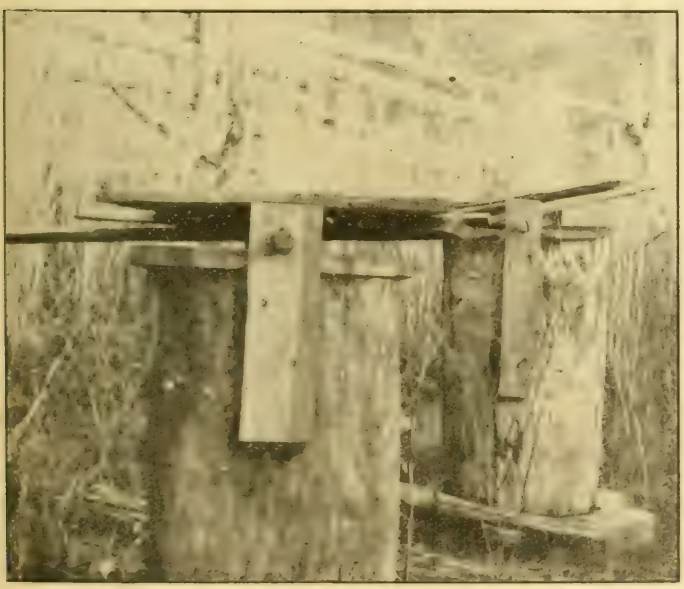
G. Frank Pease's work-tent, 26 x 44 feet, in which all the supplies were put up.

nies, although making them was so easy. Many people thought king bees rule the swarms, and some thought if one could catch a king bee all the bees would follow. Some thought there ought to be good honey-flows from oak and pine trees, and many other trees and plants.

In answering advertisements I came in touch, through J. B. Marshall, of Big Bend, La., with 324 stands near Shreveport, La., which I purchased in March, 1913, and for which I began the task of preparing new hives. In this task I was limited in time, as the honey season was just coming on, and I also had to wait until April for my new supplies to come. All I could do was to make new hive bodies, fill them with wired frames of foundation, set them on top of the old hives, and let the bees build combs and start brood in them. But few were transferred until the next season. As the season was poor, few bees swarmed. The honey was only forty pounds per colony, spring count, and an increase to 356 colonies.

My real work commenced in January, 1914, on my return to the South. Although I had left from thirty to sixty pounds of honey stores per colony the fall before, I found that they were in a starving condition, due to a warm winter and much brood-rearing. Since this starving condition made transferring easy, I began transferring, and fed as fast as I changed.

Nearly half the colonies had brood in both the old and new hives. Setting the new combs, with what little honey and brood was in them, in a new hive-body, and cutting and transferring the brood and best combs from the old bottom story, and



Log gums in Alabama.

feeding sugar stores, was the first step toward putting the bees in a prosperous condition. I fed by turning ten-pound pails full of syrup and with cheap pie-tins over them bottom end up, placing them on top of the frames and setting empty hive-bodies over them.

All the bees had to do was to crawl over the edge of the shallow pie-tins to get the syrup, which they would generally do through the night if there were enough



A large force was necessary.

empty combs to hold it. I put small twigs under the pails so the syrup could run out. When there was not enough drawn comb to hold the syrup the bees went right to work drawing out foundation. Of course feeding had to be done at night.

To keep bees from robbing, while transferring, I built a screen tent to work under. Believe me, bees are always on the lookout to rob in the South—at least where I am located. The bee-moth will also ruin combs within eight or ten days if they are not left in the hives. So I winter all combs over bees.

Although many swarms were taking their midwinter rest from brood-rearing, and there were no drones when I commenced transferring, I lost only one colony transferred, and that by robbing in an out-apiary. I lost several from starvation in out-apiaries before I could get to them, as the heavy old hives made it hard to judge their supply of stores.

I transferred nearly 200 colonies in January and February, and also bought and transferred enough bees to make me 364 colonies, spring count.

A cool spell stopped the pollen supply, and also stopped brood-rearing right in the midst of my work; but when pollen again began to be carried in, brood-rearing started in earnest. By adding new hive-bodies filled with full frames of foundation I later had an average of fourteen frames of brood per swarm, one even having twenty-five frames of brood.

The spring was backward, and little nectar came in until the latter part of March. From then on a slow flow was on most of the time until the first of July.

July (the best honey month of the year) was a complete failure on account of a bad dry spell. Thus my crop was only 57 pounds per colony, spring count, with an increase from 364 to 560 colonies (increased mostly by division), and about 1100 pounds of wax. I had 8000 new wired Hoffman frames made into full-drawn combs. From thirty-five to sixty pounds of honey stores the latter part of August, and a slow but steady flow of nectar when I left for Michigan, gave me hopes of a successful wintering.

My section honey was mostly built over double ten-frame hives and that will be my plan for producing honey next year. Bees in the South need plenty of room in which to rear brood, and also to keep down swarming.

I build my hives with bottom-boards the same size as hive-bodies, so they will pack better in loading. The bottom-boards have a hole eight by ten inches through them, covered with galvanized screen and a sliding tin to gauge air-space or to close for spring brood-rearing. There is also a sliding metal piece at the entrance to gauge according to the season, or for protection from robbing. To move a swarm of bees several miles I have only to push in the front slide, see that the under slide is drawn away from the screen, load, and away they go.

For an alighting-board I make a small board and nail two pieces of bent sheet iron. This fits in the groove that the front slide fits in, and drone-traps are also fixed with tin grooves to fit in the same grooves in front of the hives, making them very secure, so the same combination works for all.

I have a frame made to hold two 8 x 10 glasses for a cover. This always fits the hive, making it bee-tight, and also allows one to see at a glance how bees are, without letting in cold air. Over this I have a tin cover to keep all dry, and, lastly, a wooden cover over all as a weight and a protection from the sun. This combination makes three air-spaces between the sun and the bees.

I hope the year 1915 will be a good season in which to test out my localities; and as I have as high as 200 colonies in an apiary I expect to make new locations next spring. This will give the bees a better chance.

With other apiaries besides my own in one territory, nearly 500 colonies can reach the same flora. There are nearly 900 colonies in a straight line of nine miles.

Marshall, Mich.

A PERAMBULATORY EXTRACTING EQUIPMENT

BY E. F. ATWATER

Some time in 1910 Mr. E. B. Metcalf, of New Mexico, described his portable extracting-outfit with which he handled the output of 1500 colonies of bees.

Two years ago I found that the use of a building at each yard for extracting, where very large crops are not the rule, is very expensive when more yards are added each year. Certainly for a district where heavy crops are not the rule, a portable outfit is desirable, and a time and money saver; so we built an extracting-house on a first-class low-wheeled truck. The main floor is 7x16 feet, with sides 2½ x 16 feet, which are turned down when the yard is reached, and the tent can be quickly set up. This gives a floor space 12 x 16 feet, 8 feet high, with large screened openings 3 x 8 feet on each side, making a cool place in which to work.

At the rear, on one side, is an opening in the canvas, 3 x 3 feet, covered by a large flap through which the supers of honey are put into the tent and are piled in long shallow pans. Through the door in the front end the empties are removed.



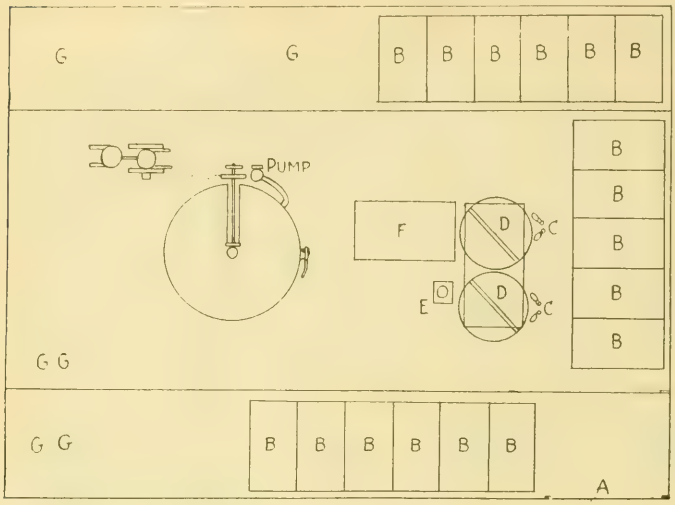
A portable outfit saves time and money.

There is ample room for several workers; and in robbing time, 100 full-depth supers of honey may easily be piled inside at one time.

The floor arrangement is illustrated.

The supers come through opening A; are piled along walls at BB; the uncapper (one

or two) stands at CC, uncapping into tubs DD (which have slatted frames or screens supported a little above their bottoms) and both draining into one can beneath. The tubs rest on a suitable framework so as to bring them to a handy height for work.



Plan of portable extracting-house.

The uncappers use steam-knives heated over the gasoline-stove E. Combs are set in drain-box F, without stopping.

From drain-box F the man at the machine puts the combs into the extractor. When extracted they are jerked out of the machine and piled on the edge of the can and cross-arm, the reel again being filled and started. Empty combs are put into supers which are piled at GG, and thence returned to the hives by passing them out through the front-end door of the tent.

The honey is pumped up about 6½ feet, then run outside through 2-inch hose, into tanks located near by. In case of a light extracting at the end of the season, the honey, if desired, may be run into a tank in the corner.

In this connection many a failure to get good results with the pump is due to faulty use. When our pump arrived we saw at once that there would be a great waste of power in expecting the pump to draw our thick western honey through the small hose or to discharge it through the small pipes sent for the purpose.

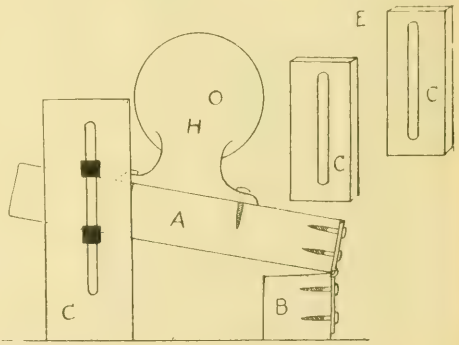
By reference to the tables used by plumbers it will be found that a slight increase in the size of a conducting-pipe results in a very considerable reduction in the retardment of the stream, due to friction between the liquid and the pipe. We mounted the pump a little below the extractor and connected it with the extractor by a 2-inch suction hose, so that gravity carries the honey to the inlet of the pump.

From the pump upward we use about 1¼-inch pipe, and then carry the honey wherever desired, with a 2-inch suction hose. So connected, one's troubles with the pump are over, and its capacity is ample.

We mount the pump as shown so that the pump platform may be lowered to tighten the belt.

At the rear the 2 x 6 is hinged to the 4 x 4 block B, while upright 2 x 4's are slotted so long bolts will pass through both, above and below 2 x 6 A, to fasten the pump-platform at any height.

For a few yards, and not too many hives, a permanent room 9 or 10 x 16 ft., on such a wagon will answer nicely, and save some time in setting up; but for many yards the larger outfit allows faster work.

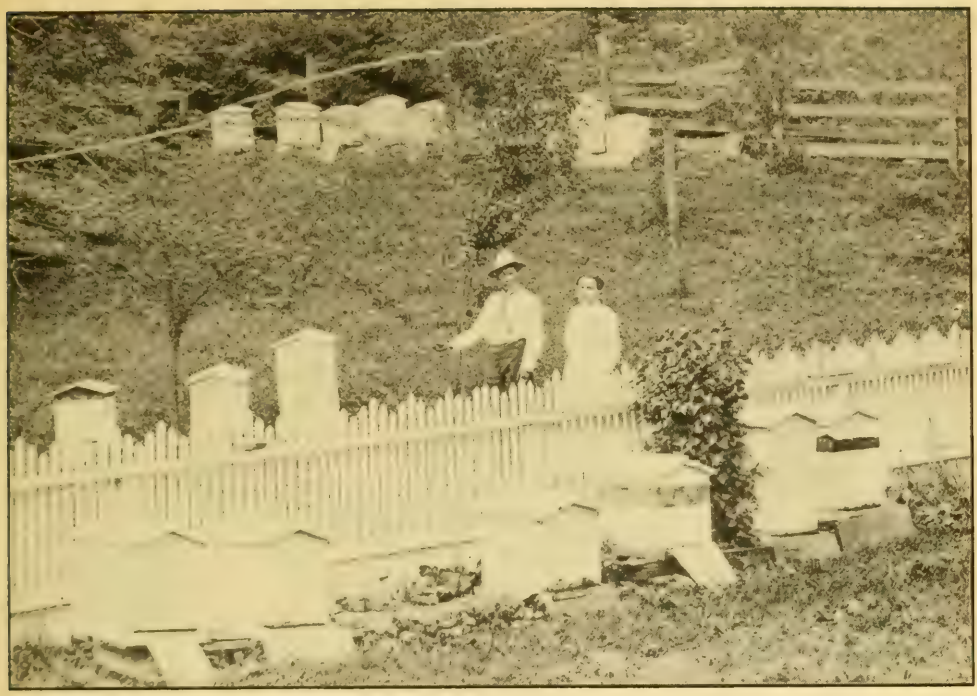


HONEY-PUMP MOUNTING.

A, edge of 2 x 6; B, end of 4 x 4; C, side of one of the slotted 2 x 4 uprights; CC, under E, position of the 2 x 4 uprights; H, the honey-pump.

Our only difficulty these last few years has been to get enough honey to work with. Such a portable outfit is far cheaper than an equipment at each yard, and there is far less robbing than with a building standing on the ground.

Meridian, Idaho.



Bees produced little more than winter stores.

AN OFF YEAR IN WEST VIRGINIA

BY S. MACDILLEY

In 1913 we were so hard hit by drouth that I don't believe any colonies in the county produced a surplus above what was required for their wintering. Last year conditions have been a little better.

The photograph showing half of my apiary was taken in August, before any surplus was removed. It speaks for itself.

We depend on locust and basswood for nectar, though wild flowers and apple-bloom play a small part.

Comb honey sells for 15 to 20 cts. a section. Extracting has not been introduced yet, as our local trade consumes all surplus.

Edray, W. Va.

BEEKEEPING IN JAPAN

BY S. IMAMURA

The beekeeping business in Japan has been carried on by my countrymen from very ancient times. The common Japanese honeybee is black, with a small body, a sting, and has all the evil characteristics of the common blacks of America.

Some people say that Japanese honeybees are of two kinds—one yellowish black and the other black. The history of the yellowish black is as follows:

Over 350 years ago a Christian priest named Francis Xavier came to this country, and at that time a foreigner brought some yellow bees from Europe and stocked them on Okinawa Island (between Kyushu and Formosa). The result was not good, and the apiary soon vanished, but the brood spread over the southern part of Japan.

Some years ago Mr. K. Aoyagi imported some colonies of Carniolan bees and started an apiary at Hakone, and afterward imported several other kinds.

It is curious that, although different sorts of foreign bees will cross with each other, Japanese honeybees absolutely refuse to do so. That is to say, Japanese queens and



Apiary owned by M. Norikane, Tukatamura, Horasimaken, Japan.

drones will not mix with foreign drones and queens, and so they always retain their natural character.

In 1909 the president of the Beekeeping Association of Shimabara Peninsula was the governor of the peninsula, and in 1910 our association sent Mr. F. Nakamura to the Sandwich Islands, where he bought some colonies of pure golden Italians from Mr. Eph. C. Smith. The following year these colonies had increased to 150, and were divided among the members of our association.

In 1911 and the following year there was quite a rage for the Italian honeybee, especially in Gifu, Fukuoka, Rumamote, and Nagasaki Ken, and the price per colony advanced to yen 100.00 ($50.00), and even reached yen 150.00 ($75.00) at the height of the rage. This enthusiasm did not die out till the beginning of this spring; but the price now is only yen 10—15 per colony.

Stocking of bees is not at all evenly distributed over this country, even in this small peninsula. Some parts are very much overstocked, and the other parts have not a single colony.

Modern beekeeping is quite a new industry in Japan, and at present beekeepers are rather colony-sellers than producers of honey; but I believe that in a few years the industry will greatly increase, and much honey will be produced. We have many honey-plants such as cherry, rape, jasmine, fruit-blossoms, live oak, wax-tree, buckwheat, tea-blossoms, camellia, and many others.

Nagasaki, Japan.

ADVANTAGES OF A SHALLOW BROOD-FRAME

BY D. W. HOWELL

I use ten-frame brood-sections, but have them only eight inches deep. This depth, I find, is better adapted to this locality, and gives more honey in the supers. When the bees are storing honey from the fall flow, and the queen is decreasing her egg-laying, this space is filled with stores for winter. The medium-depth brood-nest which I use does not allow so much room for stores that we do not need to winter on here.

I make my frames 7½ inches deep, and want them to hang flush with the top edge of the hive section, just as the shallow deep supers do. I then use 16 x 20 sheet-zinc queen-excluders which lie flat on top of frames and hive section.



Part of D. W. Howell's home yard.

The supers and also the brood-sections should have the bottom edge of the ends beveled one-half their width on the inside, which will do away with the trouble of having the ends of frames stuck to the bottom edge of the section placed above. When hive sections are made this way they are much easier taken apart, and fewer bees are killed in handling.

I am making and using a hive-stand 5 inches deep, 22 inches long on top, and beveled to the bottom as the illustration shows. This allows the bees to have a good alighting-board when they drop with heavy loads. This stand is covered on top and front, also a strip is nailed in the back as a brace. On top of this cover is then nailed ⅞ square strips on sides and back. The hive sections are then placed on these strips, doing away with the bottom-board entirely. All this should be given two coats of paint.

Shellman, Ga.

CONNECTICUT BEEKEEPERS TALK OVER PROBLEMS

BY L. WAYNE ADAMS, SEC.

The twenty-fourth annual meeting of the Connecticut Beekeepers' Association was held in the state capitol, Hartford, April 17, 1915. President Bunnell, in his annual address, mentioned the advantages of the association for learning by getting together. Non-members as a rule are indifferent and slack beekeepers; but members take more interest in bees. Last year was the poorest in his experience, for honey, but the most prosperous for the association. The field day last July was a grand success—ideal weather, good speakers, and excellent program, including the visit to the state prison.

A decided forward step was taken last fall when President Beach approved of the plan to install an apicultural department at the Connecticut Agricultural College. This was advised by Mr. Augur in 1883, and is, at last, about to materialize. The college has seemed reluctant in the past to install beekeeping. Students will become interested, take home the ideas, and save the nectar from going to waste.

Dr. T. S. Scranton, of Madison, delivered a most interesting talk entitled "Beekeeping on the Farm Fifty Years Ago." Dr. Scranton is probably the oldest beekeeper in Connecticut, being 84 years of age. He has kept bees for 66 years. He once said that



Howell's hive-stands which do away with the bottom-boards.

he had kept bees over sixty years, and didn't know anything about them until the last twenty. He exhibited an ancient model of a hive known years ago as Hall's Self-protection hive. The "protection" was against wax-worms, and consists of two trap-doors in place of the bottom-board to be opened frequently to empty the wax-worms—the theory being, perhaps, that the worms live in the bottom of the hive and visit the combs only for food.

While he was still new in beekeeping, an improvement in hive construction came with an upper story containing boxes. This yielded ten pounds of honey—clean, and free from dead bees—such a curiosity that the townspeople called from miles around and viewed it with surprise. Hall's famous Self-protection hive was the next improvement, and with it came the inventor's book on bees, containing some of the following statements:

"The queen always lays queen eggs before departing with a swarm. The bees know the difference." "A queen can be made at any age by feeding properly."

Dr. Scranton exhibited an ancient frame which had a triangle-shaped top-bar with a sharp edge pointing toward the bottom-bar. This sharp edge served as a comb-guide for the bees to build the comb exactly in the center of the frame.

Geo. H. Yale, third president of the association, read a paper entitled "Some Things I have Learned in Keeping Bees." He said he had kept bees thirty years. He began by purchasing a hive standing on end with cross-sticks inside. He brimstoned the colony at the end of the second year. One Sunday afternoon he captured a swarm by sawing down a sapling. His knowledge of beekeeping began at this time. The following year a swarm issued, and he captured two swarms at once on a sheet, placing two hives where he expected the swarms to separate and each chose a hive; but they both entered the same hive. He finally managed to separate them into two colonies. He has learned by experience that bees dislike woolen clothes, dark garments, and quick motions. Bees do better in hives facing east or south. He prefers some protection when hiving a swarm, and finds the bee-escape a great help when producing comb honey. King-birds and bee-martins, abundant when drones are flying, catch queens.

Allen Latham spoke on "Bulk Comb Honey." He uses starters instead of full sheets of foundation to avoid the thick



One corner of the Bonser apiary, near Conrad, Pa.; 111 colonies with young queens and in fine shape. Mrs. Bonser is foreman of the apiary, but Mr. Bonser is getting to be quite a beeman.

tough midrib. He prefers the long hive or "Let-alone," with seven or eight frames in front for brood-rearing, and twelve or thirteen in the back for storage, the frames running crosswise. When cutting out chunk honey he leaves the starter in. Bulk honey can be taken from the hive and put up at any time, but extracting must be done in warm weather. He uses frames with closed top and end bars. O. O. Poppleton's hive is quite similar, except for this feature. Bulk honey can be produced also in Langstroth hives by tiering shallow supers. Plenty of room in his hive keeps down swarming with black and Italian bees, but not with Banats. This hive is always ready for winter, and requires no packing.

Mr. Latham produced 180 lbs. from one hive in a poor season, and has frequently secured 100 lbs. He is satisfied with 60 lbs. per colony, but 30 lbs. or lower is a failure. Straining is the biggest problem he has to deal with—how to get the best results with the least muss. He uses a square can with a wooden frame fitted into the top, holding cheese-cloth, and above that a piece of wire netting three mesh to the inch. He uses a five-gallon can for mashing, and squeezed out between four-fifths and three-tenths of the honey, the amount depending on the length of time in waiting. The broken combs, placed in a dish-pan, he puts into the oven on the grate with a baking-tin between this and the fire-box to avoid too great heat. He leaves it half an hour, and stirs occasionally. All of his best honey is treated this way.

For marketing he prefers to use one, five, and ten pound pails, and to sell from house to house. He cuts the combs flat on brown paper, puts three, five, or seven pieces, according to the size, into each pail; and then pours liquid honey over all of it. This should be marketed early to avoid candying.

"How I Cure Foul Brood, and Dr. Miller's Method," was the subject of a paper by A. W. Yates, foul-brood inspector.

Keep all colonies clean, and exercise great caution. Beekeepers should be educated about the symptoms and treatment. Italian bees are found to be the most nearly immune. Boiled honey can be feed with care, but sugar syrup is safer. Don't buy old hives or combs. Treat by shaking at night and during a honey-flow. Dequeening may be used also. August is the best time for dequeening and requeening. The disease will probably never be eradicated, but is often aggravated through carelessness and ignorance.

The most practical method of cure is by shaking into the old hive when the other hives are closed. Have everything ready before beginning. Take out two frames



Bee gloves and bee hat, the real thing.

and shake each frame into the hive, first putting a queen-guard on the front of the hive. Use carbolic acid to prevent robbing. Melt or burn all old combs, and burn the frames. If the colony is 20 to 25 per cent diseased, it is better to shake. The Alexander method modified by Dr. Miller—that is, dequeening and requeening—is all right in mild cases; but it is cheaper and safer to shake and burn the frames. The best time to requeen is when treating foul brood. American foul brood travels slowly, and is quite rare.

President Sherman E. Bunnell, of Winsted, presided. The secretary-treasurer's reports showed the association to be in a very prosperous condition, with a membership of 159, and cash on hand of $109.33. This represents the high-water mark with the Connecticut association, with good prospects of a steady and healthy increase. The officers were re-elected as follows: President, Sherman E. Bunnell, Winsted; vice-pres., Rev. D. D. Marsh, West Hartford; sec'y-treas., L. Wayne Adams, 15 Warner St., Hartford; executive committee, Lyman C. Root, Stamford; Stephen J. Griffen, Bridgeport; Henry W. Coley, Westport.

The secretary was directed to arrange for a two-day field meeting at the Connecticut Agricultural College in conjunction with the Connecticut Pomological Society, as it seemed that the members of two industries so closely allied should become better acquainted to the mutual advantage of both.

The association went on record, opposing, as dangerous, spectacular experiments with bees in public.

South Wethersfield, Ct.

SOME BEE STUNTS

BY J. D. FOOSHE

At our Georgia and Carolina fair I saw a man traveling with a carnival and constituting the midway of the fair. He was performing stunts with bees which would seem to contradict us in our observation of bees. While he did perform some wonderful feats, none of them could prove to a veteran that bees can always be handled as he handled them. In the first place, we all know that bees are always gentler and more tractable in a house or tent than anywhere else. This man had a screen-wire tent about six feet square in which he operated. He is baldheaded, and has a hat with a wire around the inside to fit, so as not to let the hat come down on his head. He would scrape up bees with a paddle from a cloth and pour them into his hat, and carefully place it upon his head, but, of course, he was careful not to mash any. He would

also bounce a handful of bees and catch them as a ball; but all this performance came about by conditions, and not because his bees were gentler than any others. They were a fair sample of the three-banded Italians.

These stunts only go to show that persons from observation learn when they can handle the little pets with impunity. When I wish to extract honey I either use a house or tent, but recently a tent; and after getting my hives cleared of bees as best I can by shaking a frame I carry them to the tent and take off my hat and coat, and, as a rule, never get stung. I usually make a tent of mosquito netting about six feet square; and when done I take it down and put it away.

CONDITIONS IN GEORGIA.

I have been here about four years, and I have yet to see my first honey from asters and goldenrod. Where I moved from I nearly always secured a crop from this source. I do not know of any cause except a very dry atmosphere. Honey-plants will not secrete honey without moisture. Bees will work well on buckwheat here in the South, but I decided it did not pay for the honey. It blooms profusely, and bees work on it until about 9 o'clock; but I have observed that they gather more pollen from it than honey. It will not seed here unless some late; but when it comes to pollen, the ragweed has all the other plants beaten. It is the best pollen-producing plant that I know of, but has no honey.

Augusta, Ga.



Bees make a good chest-protector. Photographed by L. N. Gravely, Ringgold, Va.

DOES ALFALFA WITHOUT SEED GIVE NECTAR?

BY T. J. QUAIL

In a recent issue of GLEANINGS Dr. Miller says that he saw bumblebees working on alfalfa, and that the other bees were not working on it. While Dr. Miller is an expert beeman, I think he must have been mistaken, although the bumblebees may have been looking for honey. I have never known alfalfa to yield honey east of the Missouri River. Alfalfa blossoms that do not make seed, as a rule do not yield honey. I should like to know what the experience of other men has to present on the question. In Missouri I once saw a large field of alfalfa that was a mass of blossoms. The owner said he was expecting a heavy yield of seed, although there was not a bee to be seen on the blossoms. The owner harvested the alfalfa and started to thrash it. After an hour's work with a big machine he did not get a pound of seed. Alfalfa and white sweet clover do well in central Nebraska, and often yield heavy crops of seed, although some years have very light crops. Alfalfa makes the best seed in dry years.

We often get 150 to 180 pounds of section honey per colony on alfalfa. In fact, alfalfa and sweet clover are the only honey-plants in this part of Nebraska. The bees get some honey in the early part of the summer from box-elder blossoms. We do not raise any clover or timothy here.

White sweet clover which has always been considered a noxious weed, is coming into the native hay-meadows along the Loupe and the Platte Rivers, where they are saving the seed. Farmers are now sowing

this so-called noxious weed for pasture and hay. A full carload of sweet-clover seed was shipped from a station in Nebraska last fall. One farmer in Nebraska sowed 600 acres in sweet clover last spring. Much of this land was sandy, and he got a stand of only about 300 acres. He will sow the other 300 acres in sweet clover this spring.

Bees generally winter well in Nebraska, either in the cellar or on the summer stands. The cellars here are very dry—no dampness whatever.

The only drawback to beekeeping in Nebraska is a bee disease, not the regular foul brood. It will break out in a yard, and the bees do not swarm. It may last one or two seasons; and if the colonies are not requeened with young queens they become queenless and die out.

Miller, Neb.

TERM NOTES COLLECTIBLE

BY ARTHUR C. MILLER

Look on the sunny (and funny) side of things. It is the happier way, and leads to success.

Hundreds of hives of bees were shipped to California by water in the winter of 1859. D'ye mind?

Perhaps, just perhaps, some of the things we beemen *know* ain't so after all. I'm talking about the other chap.

Brothers Holtermann and Crane are scrapping over an eight-foot line fence. Humph! A fence that high would keep most folks apart.

The predicted fun has arrived. Sixteen-inch covers on sixteen and one-quarter inch hives! They do not exactly "fit like a duck's foot in the mud."

Procrastination is the—say it your way if you wish—what I was going to say, however, was that Procrastination is the trouble-maker and crop-loser in the bee business. And you might impress it on your bees too.

"If the bees are getting honey abundantly the boxes may be set a foot or two from the entrance to the hive for the bees to leave them. Keep from the hot sun."—Quinby, 1860.

Nice mess caused by the difference of a quarter inch in depth of different makes of "deep supers." It gives one violent thoughts if not angry speech. When shall we get standardization of supplies?

So my friend Byer thinks candy-feeding a fad. Well, son, you have a chance to think again; but give it a good try first—the candy, I mean. Candy has sundry and several advantages peculiar to itself.

What's in a name? "Absorbent cushions," which must not absorb, but shall permit the passage and escape of moisture. "Call a spade a spade" instead of a "dirt conveyor," and then the poor innocents will stand a show of getting the drift of what you are trying to talk about. A really *absorbent* cushion over the bees would be a sure-enough bee-exterminator.

Those Californians seldom do things by halves. They voted "wet," and now they have had superabundant rains, which means a good honey crop and plenty of dilutant for the other "wet" things. Blessings never come singly.

I wonder if F. A. Hanneman "invented" the perforated zinc queen-excluder, or merely applied to the art of bee culture the perforated zinc long used for bean-sifting. The results are all right, so we won't quibble about terms or glory.

Louis Scholl got caught with 35,000 lbs. of comb honey on his hives in winter, stuck there by the mud. Some of the New York boys will envy him. Wonder if Scholl and others would not profit by turning some of their energy to a good-roads propaganda.

Complete equipment to save labor is excellent, if it does not cost more in upkeep and interest than the labor saved is worth. Just where equipment should be curtailed and labor be added is a mooted question which each one must decide for himself.

In ye olden time a split side stick, with the pith partly removed to form a trough, was filled with a mixture of ale and sundry other things, and pushed in at the hive entrance to feed the bees, to keep them alive and "to give them encouragement." Wonder what some of those old sages would think of the manner of its doing now.

Who invented comb foundation? Don't answer too quickly. Listen. "A gentleman just in from California informs us that in San Francisco there is just now no little interest taken in a process of casting the bottoms of the cells of honeycomb from old wax. He says the bees will go on and complete the cells, and that this process not only furthers their work, but secures regularly formed combs in any position in the

hive desired." —*American Agriculturist*, May, 1860, page 154. Wonder what any of the "old boys" of California can dig out for us on that?

Ever watch the bees trying to go through zinc or wire excluders? Tee hee! They claw the air like a bug on a pin. Funny, and yet one pities the poor little cusses. Two spaces (three wires) with the outer wires let well into the wood slats, and the slats nearer half an inch thick are different. Two rows of holes in zinc plus *thick slats* are also different.

It is pretty safe to say that most of us might lessen the labor item if we could see our work as others see it.

It is also safe to say that no small part of the labor-saving can be effected with the equipment we now have on hand, if we will only lay aside all prejudices and try the other fellow's ways until we prove whether they are any better than ours. It is barely possible that they may have a few kinks which are worth while.

Building up weak stocks, fussing with dwindling ones, getting queens into those with laying workers, and a whole lot of other things, seem like bugbears to all novices and to many an older hand. Does not all the bother and worry start with poor beekeeping? And are not the text-books and journals somewhat to blame for laying so much stress on those problems? Annihilate all such stocks and prevent their occurrence thereafter, if you can, and you can most of the time.

Did I hear some one say "more ventilation needed," and some one else say "easier access to supers"? Um! Easy access? Ventilation? And yet big colonies store up big crops through two holes of a zinc excluder. And there is a chap out west—I think it is Atwater—who uses honey-boards with solid middle, and only a row of holes near each outer edge. But there, there! I didn't intend to ask any awkward questions —oh dear me, no!

Dr. Miller is strong on large entrances. Some of the rest of us are also, but it took us quite a while to learn their value. If you try them, be sure to back them up with strong colonies just as the doctor does.

Food for bees is pretty much the same sort of question as food for other creatures. The answer is modified by such factors as time of year, time at operator's disposal, results desired, strength of colony fed, utensils at hand, etc. Syrup is best at one time, soft sugar at another, and candy at another. Soft sugar calls for the least work, syrup next, and candy most, so far as preparing the food is concerned. Syrup is less economical than candy or soft sugar, and the two latter are about on a par. Soft sugar is not in convenient form for winter feeding, but candy is. A thin slab of candy can be laid on top of the frames at any time, but syrup and soft sugar call for feeders of some sort.

Pshaw! What is the use of enumerating further? Go try them all, and you will soon use one for one time and purpose and some other at another. You will never entirely abandon any of them—unless you get into one of those "poor locations" of Illinois where they get an average of only 266 sections per stock.

Providence, R. I.

MICHIGAN JUBILEE ANNUAL MEETING

BY F. ERIC MILLEN
Secretary-treasurer

The oldest beekeepers' association in the United States will celebrate its fiftieth anniversary at Grand Rapids, Michigan, December 15 and 16.

The original records of the association, still in good shape, show that Professor A. J. Cook, now State Commissioner of Horticulture for California, was the first secretary of the association. At that time Professor Cook was connected with the Michigan Agricultural College, East Lansing, Mich., teaching entomology and apiculture. For over twenty years since Professor Cook left, beekeeping has not been taught at the college; but in 1913 I had the pleasure of introducing the subject once more. It is a coincidence that the present secretary of the association, after so long a lapse, is connected with the Agricultural College, trying to disseminate the subject of beekeeping, as was the original secretary.

Looking over the records we find the names of many prominent beekeepers who have since gone to their reward. Among others these names are found: Ezra Rood, the first president; Bingham, Gallup, Otis, Taylor, Hilton, Hutchinson.

In one of the early meetings I find that a paper was read by the secretary on "The Apiary and its Arrangement," by A. I.



A partial view of the apiary of John R. Powers, Shelburne Falls, Mass.
Mr. Powers stands at the left in the picture.

Root ("Novice"). I wonder whether Mr. Root can remember this paper. Besides Mr. Root's, many other names are prominent—one other, who is still alive, Mr. M. M. Baldridge, who read a paper on "The Extractor."

We hope to have many old memories revived at Grand Rapids, so that we present-day beemen may get a glimpse of what the pioneer beekeepers had to contend with.

The association is trying to arrange a meeting that will be a little out of the ordinary; and, with the co-operation of the Michigan beekeepers, this should be possible. We aim to make a special effort to get a good exhibit of honey; and any beekeeper who would like to make an exhibit would do well to write me. By making plans at this time the choice of the crop can be saved and a nice exhibit prepared.

We shall be pleased to receive the dues of any members who have not paid, and from others who would like to join the association. In a future issue we shall have more to say.

East Lansing, Mich.

PLANTING SWEET CLOVER FOR BEE-PASTURE

BY E. M. NICHOLS

Mr. John R. Powers, the village beekeeper of Shelburne Falls, Mass., plants sweet clover for his bees. The clover shows in the background of the picture. Seed was planted several years ago, and comes up each spring. The plants are very thrifty, and average in height about six feet. Compared with the height of the men, this does not seem to be the case, but the illusion is due to the fact that the men are standing on a raised platform.

I have grown a little clover myself for the bees, and find it worth while for that purpose alone. It yields honey for a long time, and is particularly valuable for the queen-yards.

Lyonsville, Mass.

THE ISLE OF WIGHT DISEASE

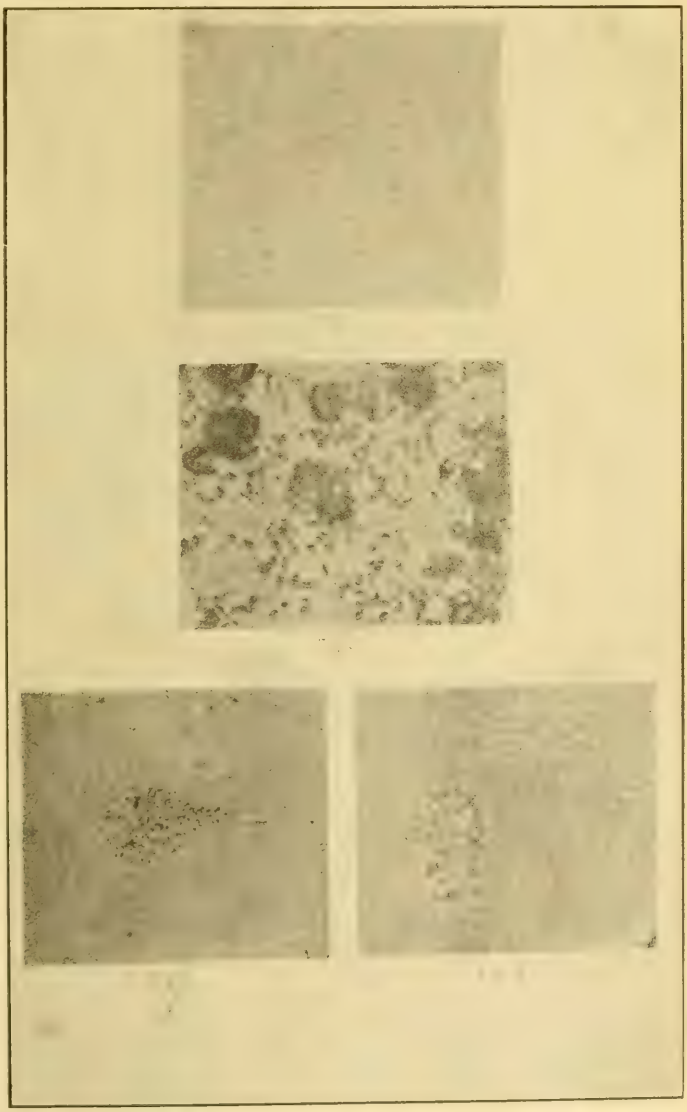
BY GEO. W. BULLAMORE, F. R. M. S.

An attempt has been made to represent the Isle of Wight disease as something new; but the literature of beekeeping in England affords evidence that a disease similar in its effects has from time to time ravaged the apiaries of this country. Letters written to the press during the exceptional mortality among bees in the early 'sixties of the last century describe symptoms identical with those of the present epidemic, and also show that the trouble then had been known for years as a peculiarity affecting the beekeeping in certain districts.

The Italian bee and the bar-frame hive were both introduced here in 1859, and trading in bees followed. There is little doubt that this trade has much to do with the severity of modern epidemics.

Much "beekeeping" in this country is less concerned with keeping bees than in persuading others to do so. Accounts of losses were therefore suppressed owing to their discouraging tendency. An Isle of Wight beekeeper was the first to break through this conspiracy of silence, and, as a consequence, the disease became notorious as the Isle of Wight disease.

I have read thousands of descriptions by other beekeepers, and have observed many cases myself. Beyond the death of large numbers of bees no symptom is present invariably. While confined to the hive by severe weather in winter the bees drop dead in a heap on the floor-board. In milder weather they may crawl out and die on or near the alighting-board, which is sometimes soiled with light or dark signs of dysentery. At seasons when much activity prevails among the bees death may occur while they are out gathering. The dying bees may then be found under flowering trees, on blossoms in the fields, or crawling about on roads and paths. The symptom that usually attracts attention is numbers of crawling and dying bees in front of the



Micro-photographs of Nosema. Reproduced by permission, the Board of Agriculture and His Majesty's Stationery Office.

hive. These bees crawl up blades of grass and sometimes get together in small clusters. Crawling is an indefinite term used to denote moving slowly, running swiftly, or advancing by short leaps in attempts to rise on the wing. The bowel in a crawling bee is often, but not invariably, loaded with pollen residues.

Stocks or swarms, apparently healthy, from the same affected district, when placed several miles apart have been known to manifest this crawling symptom on exactly the same date many months after their arrival among new surroundings. Stocks may store abundant surplus, and show no signs of disease during the summer and autumn. Shortly after being jacked down for the winter they have died. The facts suggest that the *apparently* rapid spread is due to similar conditions acting on disease latent in a large number of stocks.

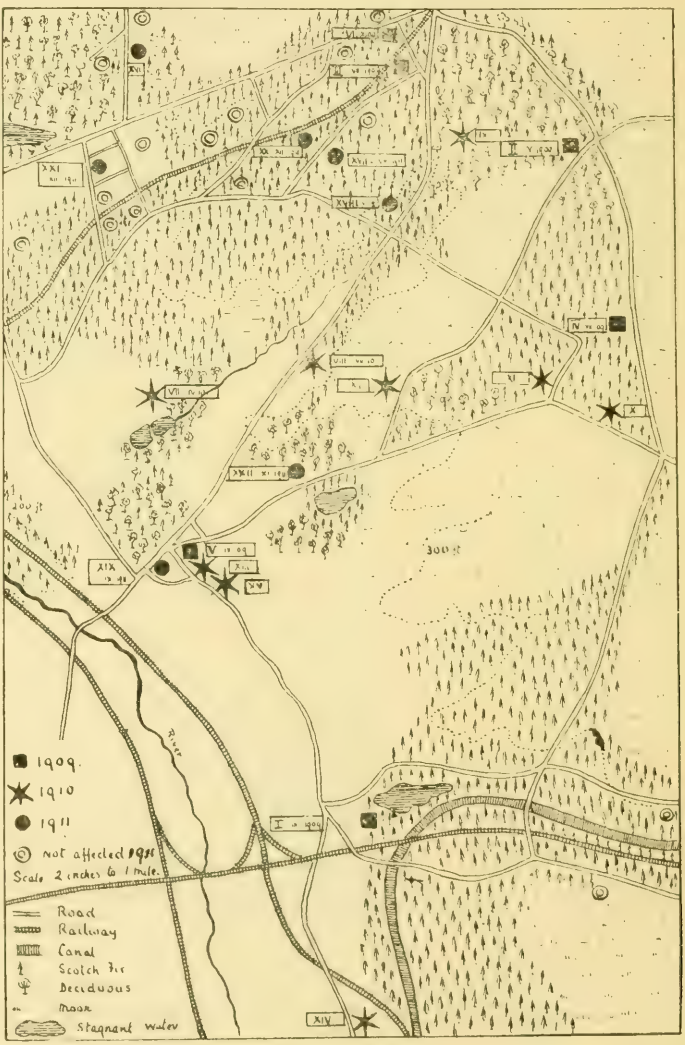
Epidemics in this country coincide with spells of wet years, and a wet breeding season appears to be an important factor in favor of the disease.

Queens, drones, and workers are affected. The queen often survives the workers, probably on account of her greater vitality. When her death precedes that of the workers the crawling symptoms usually disappear so that queenless stocks are not suspected.

I have seen stocks exterminated when no sign of brood disease was present. Sealed brood from a moribund stock, when placed in a wire cage and incubated, has hatched out successfully.

Microscopic examination usually reveals the presence of parasites in the cells lining the stomach of a crawling bee, and these parasites are believed to be young forms of *Nosema apis*. Spores of this organism are less commonly met with in this country.

A "Report on the Isle of Wight Bee Disease" was issued by the Board of Agriculture in May, 1912; and by permission of the Board and of His Majesty's Stationery Office I reproduce some micro-photographs of *Nosema* and also a map illustrating the spread of the disease in a small heavily stocked area. On this map the apiaries which developed the disease in 1909 are represented by black squares; those which developed the disease or died out in 1910, by stars; and those which developed the



How Isle of Wight disease spreads in a small, heavily stocked area. Reproduced by permission, the Board of Agriculture and His Majesty's Stationery Office.

disease in 1911, by black circles. The apiaries marked as concentric circles were apparently healthy in 1911, and four were removed from the district. Of the remaining eleven apiaries ten developed disease in 1912.

Bees which wander to other hives are probably the chief agents in spreading the trouble. Stocks in high trees, roofs, etc., being out of the line of flight of stranger bees often escape for a time. It will be seen by the map that stocks in the open suffered before those surrounded by fir-trees. Bees are more likely to fly around a wood than through it.

Some facts tend to disprove the view that frames and hives carry the disease. But it is impossible to imagine that an organism that is passed from bee to bee is not sometimes transferred indirectly by the agency of combs, etc. The explanation may be that, when parted from its host, the causal organism quickly loses its virulence or even its vitality.

Drug treatment is a waste of money; but, owing to the fluctuations of the disease, any quack remedy can obtain testimonials.

Stocks of foreign origin sometimes survive when the native bees die off rapidly. This tolerance or immunity is not absolute; and on the Isle of Wight, where the disease menace was constantly present, Italian and other foreign races died. To what extent this seeming immunity can be utilized for restocking is not yet known. In my own apiary all native blacks died out, and the sole survivor of them was an Italian stock. Beekeeping can still be carried on, but will be in the future a matter of experience rather than dogma. It is too late now to attempt to stamp out the trouble. Owing to the manner in which the disease progresses before showing itself it would be necessary to destroy the stocks for several miles round any outbreak, with the result that these denuded areas would overlap and cover practically all beekeeping districts.

Statements regarding Isle of Wight disease made in GLEANINGS for controversial purposes should be received with reserve. John Smallwood (1914, p. 56) suggests that the disease is abating in Oxfordshire. The season of 1913 was there marked by heavy losses; and when his article appeared Oxford and district was practically cleared of bees. W. Herrod, p. 58, 1914, says, "Neithem queen nor brood is affected, because their food . . . does not contain the germs of microsporidiosis." This is the scientific name for the nosema disease, because nosema is a protozoon belonging to the *Microsporidia*. Nosema has been found in queen bees by both Zander and Maassen in Bavaria, by Nussbaumer in Switzerland, and by Dr. Graham-Smith and others in England, as stated in the Report of the Board of Agriculture. If infected food is necessary to produce infection in queens, then I fear there is no alternative but to consider that digested food *may* contain "the germs of microsporidiosis."

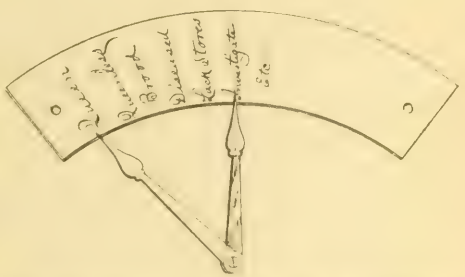
Albury, Herts, England.

A NEW COLONY-RECORD SYSTEM

BY W. E. WOODRUFF

Like most beekeepers who run outyards I have found it difficult to keep tab on the condition of my hives and to remember what each needs. The card-index and notebook systems are too fussy for extensive work, while placing brickbats and other signals in certain ways on the hives is out of the question where one handles a number of colonies.

It occurs to me that a simple device, and one that would prove to be both inexpensive and permanent, would consist of an aluminum strip made in a semi-circular form and bearing numbers up to, say, ten, or, better still, having raised letters or words on it indicating the condition of the colony when last inspected. The following sketch will better suggest my idea. A pointer, or possibly two, should be tacked at a point where they could be moved to the word or figure indicating the condition of the hive. In case numbers were used, the



apiarist would, of course, have to memorize a "key," so they would be intelligible.

Cottonwood, Ariz.

COMMENTS FROM THE COTSWOLD HILLS

The Value of Shelter in the Beeyard

BY A. H. BOWEN

A well-sheltered apiary is a great asset to successful beekeeping. Not only do the bees winter better and with less loss where the hives are adequately protected, but brood-rearing is started full early, and colonies will build up almost twice as fast as they do in an exposed apiary where there is little shelter from the elements.

On the Cotswold Hills we think the ideal location is a clearing in a plantation or spinney, where the undergrowth around is sufficiently dense to break the force of the wind and render the air warm and still, even in the chilly days of winter. With the hive facing south they catch the full rays of the sun, and in the spring the bees can visit the water-trough or box of pea flour with perfect safety.

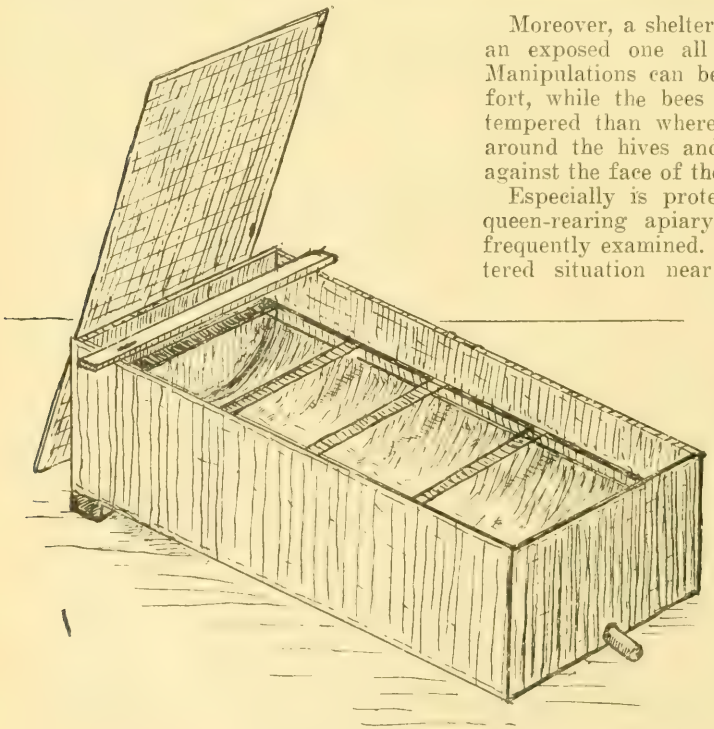


A sheltered nook within a copse the ideal location.

Moreover, a sheltered apiary is ahead of an exposed one all through the season. Manipulations can be carried out in comfort, while the bees are invariably better tempered than where a breeze is blowing around the hives and driving the bee-veil against the face of the operator.

Especially is protection necessary in a queen-rearing apiary when the bees are frequently examined. Furthermore, a sheltered situation near the apiary affords an opportunity for the mating of queens in restricted mating weather, when the outside temperature is low or a strong breeze is blowing.

Shelter is so important that, in starting a new apiary, I would certainly give the preference to a well-protected spot. The cut gives a good idea of an English apiary with a natural windbreak.



Simple uncapping-box.

A SIMPLE UNCAPPING-BOX.

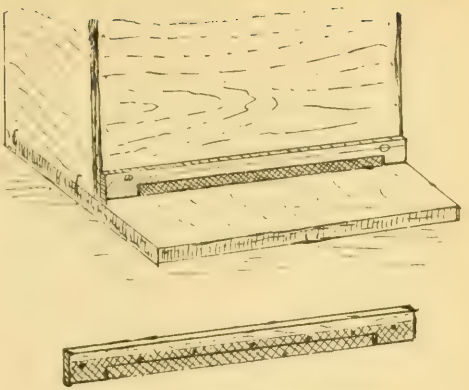
I have designed an uncapping-box well suited to the needs of smaller bee-keepers who work only a few hives. It fills all the requirements of a good box, and at the same time is simple and easy to construct. The illustration makes this plain.

It can be made from any drygoods-box, measuring about 30 inches long, 15 wide, and a foot deep. A piece of tin, 18 inches wide and as long as the box inside, is bent to form a trough which rests on the bottom of the box, the sides being made secure by nailing along two strips about half way from the top edge. This also gives support to five lengths of stout hoop iron upon which is laid a screen of large-holed perforated zinc for the cappings to drain.

The box is slightly raised at one end, so that the honey readily flows down and out of a one-inch hole at the opposite end into a tin placed underneath for the purpose.

When the cappings have thoroughly drained they are taken out and set aside ready for melting into wax.

The second sketch shows a device for confining the bees when hives are being moved. From a strip of wood 3 inches wide and the length of the entrance a piece



Device to confine bees en route.

is cut out of one side about an inch deep. Next a strip of perforated zinc or wire cloth is tacked along to cover the portion cut away. In order to confine the bees the guard is fastened zinc side inward to the hive front with two screws.

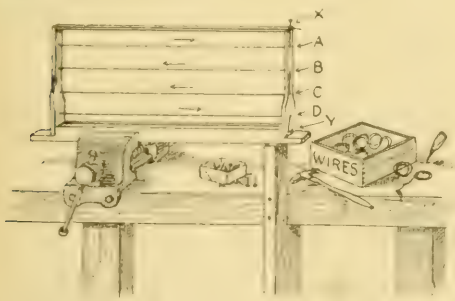
Such an appliance saves a great deal of time and many stings when preparing bees for shipment, and is much simpler to fix than the old type of "push-in" guard of wire cloth.

Cheltenham, Gloucestershire, England.

SPECIAL METHOD OF WIRING FRAMES

BY J. S. TAYLOR

With my method of wiring frames I can do as many as fifty an hour, although that leaves no time to spare and not many snarls to undo. Forty or forty-five are quite easily done, and, best of all, with not one-tenth the tedium of the old way. I find it hard to believe that this or some better method is not in use by the large beekeepers.



My method, in brief, is as follows: Start wire at hole B, then back through hole A; hitch it around the nail X, and drive the nail home. Take the other end through C, then back through D; grip it with the pliers in the right hand; hitch it around the nail Y, and drive it home. Break off the surplus wire and release the frame from the vise with the left hand.

In nailing frames together I always leave the nails X and Y projecting about a quarter of an inch. I also run off the wire, cutting to length, without straightening too much or taking the coil out. The wires will recoil very nicely as a rule, and lie flat in an empty foundation-box.

Any vise will do. Note the small support for the end of the frame. This gives a solid rest for driving home the nail X. The vise takes the shock of driving the other nail.

As for the final drawing of the wire to the desired tension, I presume the reader will see that, with the pliers held in the right hand, and using the left as shown in the A B C, one can draw the wire as tight as a fiddle-string, provided the frame is firmly held in the vise.

Richwood, Ont.

WANTED—SOME BEEKEEPERS

BY W. J. ROUNDTREE

Referring to your editorial, page 260, March 1, "Beekeeping in the Great West," I want to say that we have here some virgin territory that is practically untouched. There are thousands and thousands of acres of alfalfa on irrigated lands, and sweet clover on all the roadsides and ditches, all wasting its sweetness on the desert air. It is not everywhere that additional beekeepers would find a welcome; but I would welcome some additional beekeepers here in Wyoming for the following reasons:

Beekeeping is in its infancy. There are only a few small producers with from 30 to 50 stands. We produce more honey than the local market will consume, but not enough to make a combined shipment of a carload. Freight rates are such that we cannot ship in any other way.

This territory is irrigated by a government canal known as the Pathfinder Project, which waters some 150,000 acres of land in the valley of the North Platte, in eastern Wyoming and western Nebraska. I hold no brief for the people of Nebraska, and do not know whether they would welcome more beekeepers or not; but here in Wyoming there are over 30,000 acres of alfalfa land in which I do not think there are 200 colonies of bees. Neither have I any bee locations to sell nor any ax to grind, except that personally I should like to see enough honey produced so we could ship to market in car lots.

The altitude of this valley is 4200 feet. The climate is about that of Colorado. The land is particularly adapted to growing alfalfa. Sweet clover grows whenever it is permitted to establish itself, but is not cultivated as a crop. These are almost the entire sources of nectar. The honey is as fine as can be produced anywhere.

Winters are usually bright, dry, and not excessively cold. My bees winter in single-walled hives without protection, and so far my loss has been insignificant. Without having investigated the matter enough to say positively, I think locations can be secured up and down the river from Old Ft. Laramie to the state line. Possibly, also, below in western Nebraska.

So far we produce only comb honey. The percentage of increase in Wyoming has been very large in the last few years. There are no expert beekeepers among us as yet, and I do not know just what the yield is per colony. The government, I believe, gives it at 75 lbs. At Wheatland, in Platte Co., they have shipped a carload for the past two years; but that territory has been settled longer than here. The past few years the cultivation of sugar beets has cut down the acreage of alfalfa somewhat, but still there are thousands of acres, and always will be, since the crop rotation here is sugar beets three years, and then back to alfalfa again. I think there is a great future here for the bee.

Lingle, Wyo.

CATCHING AND CLIPPING QUEENS

BY E. S. MILES

Presuming that all up-to-date beekeepers, and all beginners who wish to succeed, practice clipping, and that some may not have a satisfactory way, I wish to give my method. While, doubtless, there may be better ways, if any one is not satisfied with his present practice let him try this one.

Queens are clipped primarily to prevent swarms lodging in tall trees and other inaccessible places; but I would clip so as to know absolutely without mistake the age of my queens, even if there were no other reasons. I want longevity in bees, and it seems reasonable to me to expect it from strains whose queens live long rather than from those whose queens are shorter lived. There may be other ways to mark queens; but as this is easy, effective, and at the same time gives a chance for absolute control of the colony, and, so far as my observation goes, does no harm, I think it advisable and profitable.

When I started clipping I caught the queen by the wings with the right hand and held her with the thorax between the thumb and first and second finger of the left hand while clipping. It made me rather nervous to hold her this way, as I was afraid I might squeeze her too hard. At this time I happened to read that the bees would be more likely to attack and kill a queen held in the fingers, on account of the strange scent left upon her, and that the only way was to clip her as she walked on the combs. I wish that writer had told us to try it on drones or workers for a dozen times or so

first, for I tried it at once on a fine $2 tested queen. Well, I clipped her all right, but not the wings; and I voted that way too expensive for me. So, in thinking the matter over I hit on the following way which I have liked well enough to continue ever since. I never have a queen lost from clipping.

To clip now, I open the hive as carefully as possible, so as not to alarm them, as it is easier thus both to find the queen and to catch her. When the queen is seen I set the left-hand end of the frame on the edge of the hive, or, more frequently, on my left knee, as I always sit when clipping, thus freeing my left hand. Catching the queen by both wings with thumb and fore finger of my left hand I set the comb back in the hive by letting the free end down until the projecting top-bar comes to the rabbet, then lower the end I have hold of till the bottom of the frame rests on the other end of the hive, the frame thus hanging in the hive at the left end, and projecting out at the right end. I now take the shears, which are laid somewhere convenient to my right hand, and lower the queen until her feet touch my left knee, when she grabs hold and begins to pull; and as soon as her legs are thus engaged, and out of the way, I slip the point of the shears over whichever part of either wing I wish to cut, and just a second glance to make sure her legs are on my knee—snip! and she is clipped, and running around on my knee, while the only part I have touched is between my thumb and finger.

I immediately set the point of the scissors down flat across her pathway, and, as she starts to crawl over them, I quickly transfer her to the top of the frames she came from. If she starts to run up the scissors I take them in the left hand, if necessary, to prevent her reaching my right hand before she is over to the comb; and it is a good idea to hold your free hand under her in case you should drop her off.

A little practice, however, will enable one to clip very quickly, and without touching the queen. As to her running on my knee, it is covered with propolis where I rest the frames while catching the queen, so it is hardly likely she will get any hostile scent there. At least I find this entirely satisfactory; but one could rest her while clipping on a piece of board held across the knees if he prefers. Any kind of fine-pointed scissors that cut well at the points will do to clip with.

After clipping, close up the hive as quietly and quickly as possible. A young queen just commencing to lay is much more "scary" about being caught than an older one.

There is a little knack, also, in getting hold of a queen by the end of her wings. I am not sure I can describe it so it can be understood, but I'll try.

Most queens, when the fingers get close to them, take alarm and begin to run one way and another; and if you follow up they usually get very much alarmed, especially young queens. Now, if you try to grab a running queen with finger and thumb apart, you stand a good chance of striking her body, and perhaps injuring her. The way I do is to get her, or let her get, with her head up, and slightly away from where the fingers will be when I take her, and hold my hand as near her as I can without making her run. When I consider her in a favorable position I slip my hand quickly up to her with my thumb and fore finger tightly together; and when the points of them are close to her wings I roll my thumb and finger ends together by crooking my finger and thumb slightly, thus rolling the edge of my thumb and finger on to her wings with a sort of rolling or pinching motion. Without opening them apart I avoid danger of grabbing the queen's abdomen.

Practice on some drones, or young workers, and the knack will be acquired easily. In clipping, always handle combs quietly without jarring, and do nothing to frighten the bees. Keep cool yourself, and don't be nervous. If you cannot do this a little practice on drones or workers may help. It is perfectly simple and easy after you have had some practice.

Dunlap, Iowa.

HIVING AND CARING FOR RUNAWAY SWARMS

BY JEAN WHITE

It sometimes happens that a runaway swarm of bees settles in a spot where it might easily be hived if one knew how to go about it. If one does not know, the swarm will fly again when its scouts return, and locate in a hollow tree and be lost forever. The process of hiving is simple enough so that any one might safely perform it; but often a novice with bees has not the courage. Bees settle most often on the branch of a

tree, although not always. They have been known to settle on almost every known thing that would offer them a chance to hang. If they settle on something where the swarm is pendulous, and not too high up, the process of hiving is very simple.

Protect the head with a veil, being sure it is well wrapped about the neck and stands away from the face somewhat. Any good-sized hat-veil will do, if tied around a hat with rim enough to hold it away from the face. Protect the hands with loose kid gloves and tie the sleeves over the wrists; for if a bee starts up your sleeve or down your back you will attend to nothing else for a time, very likely. Get a good big pail with a bail; and, holding it under the cluster, pull them carefully off the branch into the pail. A box will do, but is not so easily handled. Having them in the pail, cover them over with a thin cloth tied down, and get a hive ready. They may remain in the pail or box for some hours, or even over night if the cloth covering is thin enough to admit plenty of air. Mosquito netting is about right; but cheese-cloth will answer. If possible to find a modern hive and some foundation, put strips of foundation along the edge of the frames. Set the hive on some kind of firm support that will raise it a few inches from the ground, and face it toward the south or east, so that the early morning sun will warm the entrance. Place a board close up to the entrance; cover it with a white cloth; and when all is ready empty your pail or box or bees out upon this cloth-covered board close up to the entrance. Of course you will want to wear a veil and gloves to do this. Usually they will begin at once to crawl into this new hive-entrance. If they do not start, brush a few of them lightly toward it. After a few of them have gone in, the others will follow in a steady stream until all are in. With frames and starters of foundation they will not come out, but at once establish themselves and proceed to their business of building brood comb in which to rear a new crop of bees.

If no hive is to be had, a box may be made to answer, although, like all makeshifts, it is not so good. A box about twenty inches square and from eight to twelve inches deep may have the bottom removed. Saw out an entrance about six inches long and half an inch deep. Find a bottom-board that will allow of a four or five inch margin all around, and, having set this on something to raise it off the ground a few inches, turn the box with entrance down and toward the east or south upon this bottom board. You will have no frames or foundation unless you manufacture frames, which you will hardly care to do. Make a cover for this box that will fit down tight, but that can be easily raised. Place inside a few lumps of sugar, and cover with a piece of oilcloth, as the box will hardly be waterproof. Let the oilcloth (an old table-cover will answer) project a couple of inches all around, and then place the cover, and weight it with stones or old iron so that the wind will not blow it off. Your house is now ready for its occupants. Proceed as with a new hive.

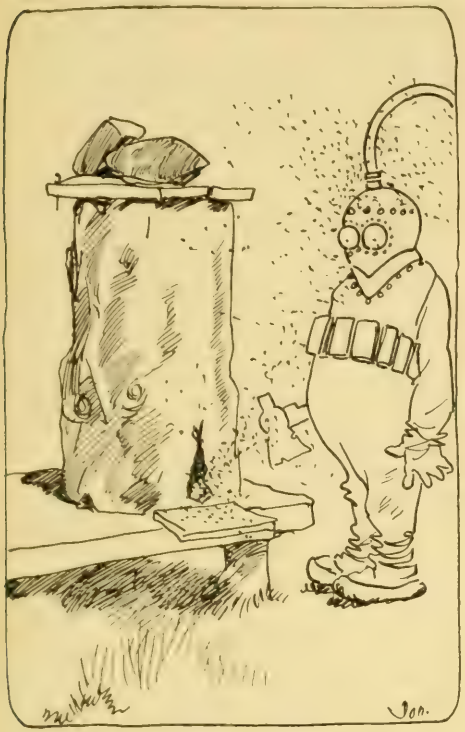
It is well to watch them for a few days to look out for signs that they are not satisfied with their new home. If they are, you will hear only a mild hum. The field bees will be busily going to and fro, and there will be a constant succession of little pollen-carriers going into the hive with their pollen-baskets so loaded with yellow pollen as to make them very awkward about crawling into the hive. This shows that they have begun work on their comb, and will stay. Should these pollen-carriers be absent, and the hive noisy and excited, with bees clustering around the outside, they will be quite likely to come out and seek other quarters. Sprinkling them with a fine spray of water will usually quiet them, and they will not come out if there is a big noise about. Putting lump sugar at the entrance, and covering them over with a screen, will induce them to get busy at home; and once they begin work they will remain. They seldom come out after the second day.

If it is early in the season, and the swarm a large one, they will want a chance to store surplus honey, or they will cast a swarm which is not desirable so late. As they must first build brood comb there will be plenty of time to get a super or a shallow body for extracting honey with frames and starters of foundation. It is best for a beginner to buy a body all prepared. After that one will know how to prepare one himself, and the expense will be somewhat less. In a home-made hive the bees having no frames or starters will build their comb very irregularly. They will winter all right indoors in this, however, if they have plenty of food. Take them in at the first hard frosts, and store in a dry cool cellar; and if it is not dark, shade the hive and entrance.

I got my start with bees from a swarm that settled on a shade-tree in the yard. I have had a good deal of enjoyment, some honey, and an increase of bees since then, and am very much in love with the work. Bee literature is as fascinating to me as the most enthralling novel.

Glover, Vt.

Heads of Grain from Different Fields



The Backlot Buzzer

With courage and a dirin' suit 'most any feller can pull the teeth of an old-fashioned bee gum.

Some Factors Governing Stimulative Feeding

Dr. C. C. Miller:—I have been thinking about this question of stimulative feeding a great deal, and I have wondered if there is not an explanation somewhere as to why some say it is entirely wrong, and others claim it to be the only thing.

My experience has been that, when the bees have plenty of sealed honey in the spring, they will raise all the brood they can cover. This is all I care that they should have. But now I am told that if a cold spell should come, and the bees have plenty of sealed stores, but none unsealed, they will starve the brood before they will uncap any honey, even though their combs are half full. Now, if this is true it seems that it would pay me to feed every colony some syrup when a cold spell comes in spring to make sure that none was without unsealed food. Of course, if the bees had gathered honey in advance it would not be necessary to feed. Then the large beekeeper with scanty spring pasture and danger of cold spells is the one who would profit by spring feeding. I believe that those who claim they profit by stimulative feeding in spring do not gain by stimulating the bees to rear more brood, but by getting them to keep what they already have.

Elroy, Wis. OSCAR RITLAND.

[Dr. Miller replies:]

I don't know all about it, but I can tell you how it seems to me. According to your view the argument for the advantage of stimulative feeding is that "if a cold spell should come, and the bees have plenty of sealed stores, but none unsealed, they will starve the brood before they will uncap any honey, even though their combs are half full."

What testimony have we in regard to this? Here is one item that may have a little bearing: I have often seen, in the fall, eggs in the hive and no unsealed brood, with abundance of honey in the hive; and I think this is a more common condition than is generally supposed. It seems to show that at least sometimes there may be plenty of stores in the hive, the queen may be laying, and yet no brood will be developed from the eggs, and of course no larvæ fed, because no honey is coming in at the time. I have also known other times when the bees continued to rear brood, although for a number of days no honey had been coming in. This latter was in the early part of the year—not in the fall.

So it would appear that the season of the year is a factor in the case. Perhaps a stronger proof of this lies in the fact that it is not an uncommon thing for brood-rearing to be started before bees are brought out of cellar, when, of course, no honey is coming in, and at a still earlier date in colonies wintered outdoors; while it is well known that it is very difficult to start brood-rearing with any amount of feeding late in the fall.

It sometimes happens in winter that bees use up all the stores within reach, and starve or freeze with plenty of stores in the hives. But this happens only in a prolonged cold spell, for bees are provident creatures; and when they have used up what stores are within reach, unless it is too cold for them to stir they make it their first care on finding the nearby stores exhausted to bring a fresh supply from more distant combs, or else to move bodily to them. Moreover, I think they are not merely satisfied with sealed stores; and I am not sure I ever found a case when, if they had any honey at all, there was not a goodly store of unsealed honey in the middle of the cluster.

Now, keeping all these things in mind, and remembering that stimulative feeding is practiced, not at a time when bees are marooned with the cold, but when they are free to move to any part of the hive, does it look reasonable to suppose that with honey in the hive bees will let brood starve at a time when they are naturally most inclined to brood-rearing? I do not say that it never happens; I don't know; but I do say that in an experience of more than half a century I never knew it to happen with my bees.

Incidentally you raise the question why some think stimulative feeding entirely wrong and others claim it to be "the only thing." That's easy. Notwithstanding the strong inclination of bees to rear brood early in the season, a dearth will stop brood-rearing *if the dearth continues long enough*. In places where this occurs, which I think are exceptional, stimulative feeding is "the only thing," while in other places, such as mine and almost certainly yours, it does no good and may do harm.

Marengo, Ill.

Doubled-up Nuclei Not Wintering Well

In regard to the wintering of bees in this locality, there has been a wide variation. I have visited perhaps a dozen beemen, and find where there was a fall flow of honey or where bees were located in a basswood belt the colonies came through the winter very well with but little loss. Buckwheat having been a failure last fall, most bees suffered as there was little if any brood reared after August 1. Our own loss was 8 to 10 per cent. This loss was chiefly among nuclei which were doubled up late in the fall. We did no feeding at outyards last fall, and the loss

here could have been avoided in almost every case by liberal feeding; but sugar was rather high, and we thought we would risk them.

There are many colonies which wintered in the ordinary eight-frame dovetailed hive with no packing whatever. In many cases these unpacked colonies seem to have wintered better than those heavily packed on all sides and top. It is beginning to bother us to know whether to pack or not. In one of our outyards we had a colony in an old-fashioned chaff hive. This hive got badly wrecked by stock after our last visit. It contained no chaff, and the sun could shine in on the bees when we found them. The bees were flying from all four sides at the top of the hive, but the combs were nice and dry, and the bees themselves in the best of condition.

Bellevue, O., April 20. H. G. QUIRIN.

[We have observed a somewhat similar state of affairs in and near Medina. We find this, however, that the main cause of bad wintering is uniting up nuclei in the fall, pulling out pounds of bees from the colonies during the season, taking queens away from them, and otherwise disturbing the normal trend of the colony. In fact, general queen-rearing operations, the filling of orders for bees and queens, so demoralizes an apiary that it is in very poor condition to go into winter quarters. While these nuclei can be united they do not seem to get together in such a way that they will winter well nor come out in the spring in good condition. On the other hand, colonies whose brood-nests have not been tampered with, and which have been left through the entire season, and only the upper story or super taken off with honey, seem to winter well whether in double-walled or single-walled hives. But we notice this: That the same colonies in double-walled hives are a great deal stronger than those in single-walled hives. In one apiary where we found a large number of colonies had wintered in eight-frame single-walled hives they came out in very good condition. —ED.]

Apiary Demonstrations in Ontario in 1915

Arrangements are well advanced for the apiary demonstrations to be conducted throughout the province of Ontario this coming summer. The increased attendance of this last year indicates the great interest that is being taken in this line of work. In all, fifty-five demonstrations, with an average attendance of thirty-four, were conducted this past season. The whole apiary and the beekeeper's equipment is placed at the demonstrator's disposal, giving him excellent opportunities to illustrate with the actual objects many of his remarks.

The demonstrator has complete charge of the meeting. Usually he starts by a short talk on foul brood, then proceeds to the apiary and examines several colonies. If the disease is found, a colony is treated. Suggestions are offered on many minor details that present themselves as the hives are being opened. Special attention will be paid to wintering. Models of the four-hive wintering-case will be supplied the demonstrator. These will form a new factor of the meetings.

Final arrangements are yet to be made; but ample notice, both by post card and newspaper announcements, will be given later. G. F. K.

Beet and Cane Sugar Give Equally Good Results

As I stated some time ago, my bees were fed heavily last fall on sugar—some altogether on cane sugar, some altogether on beet sugar, and some half on cane and half on beet sugar.

I have not had time yet to make an individual inspection; but from casual observation there appears to be no noticeable difference due to the different food. Out of 180 colonies after 144 days in the cellar, up to date only three are short and these proved to be queenless.

The hives all came out clean except one, and are in good condition. This one had no beet sugar. Three-fourths of them were heavy enough to winter again when they were taken from the cellar April 7. The first week was pretty cool, with freezing nights; but since then the weather has been ideal, and the bees have done well on soft maple, elm, plum, and dandelions, which are beginning to bloom now.

The clover wintered perfectly, but is in need of rain, as it is getting very dry.

Union Center, Wis. ELIAS FOX.

Granulated Sugar Successful as Bee Food

In reply to one of Dr. C. C. Miller's Straws, page 219, I believe the Germans are wrong in holding that sugar is deficient as a bee-food, and we are right. Many years ago I used to get late swarms of black bees that were to have been brimstoned, and by uniting two or three of them make a strong colony, putting them on empty combs that contained very little pollen. I waited long enough for them to have but one queen. I killed that queen and gave them an Italian. At the same time I fed them up on good thick granulated-sugar syrup, as I had no honey for them. Then I packed them snugly with chaff. They would winter well, and would rear very little brood until they began to gather pollen from the swamp willows. Then they would rear brood rapidly, and be ready for upper stories as early as other colonies that were wintered on honey. They never showed any signs of disease or spring dwindling.

Humberstone, Ont. ILA K. MICHENER.

Climate of Lower British Columbia

Beekeeping is only in its infancy in British Columbia as yet, but seems to have a promising career before it. I might mention that we are in the Fraser Valley, on the south side, about half way between the Fraser and the international boundary, and about thirty-two miles southeast of Vancouver. We have had no snow this past winter, and very little rain. Two cold snaps, each lasting a couple of weeks, one in December and one in January, brought frosty nights with about 16 degrees of frost and brilliant sunny days. The rest of the winter has been very mild and springlike.

Everything is coming forward rapidly now. There is practically only one month in the year when there is no bloom in the gardens, as there are always some late roses in bloom at Christmas. In February the spring bulbs begin to bloom. The bees around here are wintered out of doors in single-walled hives. There is an immense amount of fireweed growing at the edge of the bush about a mile south of us, and the garden raspberries do remarkably well here, growing to a height of ten feet and more in a season. It is so with clover and other blooms. There should be a fair amount of pasturage for bees here.

Langley Prairie, B. C. H. G. DAVIS.

When is a Colony Strong?

The first thing to do in treating European foul brood by requeening or caging the queen is to make the colony strong. All seem to agree on this. Now the very important question arises, "What is a strong colony?" That is, what strength is necessary for success, and below what success cannot be expected? Ideas as to a strong colony differ widely. This word "strong" in this connection is exceedingly vague. I believe it would be helpful to have all who have had success with this method of treating European foul brood give some way of measuring a colony so all may know what is meant by "strong." Will authorities please tell us?

New Egypt, N. J. E. G. CARR.

A. I. Root

OUR HOMES

Editor

Who is this uncircumcised Philistine that he should defy the armies of the living God?—I. SAM. 17:26.

Thou comest to me with a sword and with a spear and with a shield; but I come to thee in the name of the Lord of hosts, the God of the armies of Israel, whom thou hast defied . . . that all the earth may know that there is a God in Israel.—I. SAM. 17: 45, 46.

Therefore the children of Israel could not stand before their enemies, but turned their backs before their enemies, because they were accursed. And the Lord said, Neither will I be with you any more, except ye destroy the accursed thing from among you.—JOSHUA 7:12.

I suppose most of our readers are familiar with this (in some respects) strange story told in the seventh chapter of Joshua. Under Joshua's administration the children of Israel were successful in their battles. I do not know but success had made them over-confident; but all of a sudden they failed. They were astonished and alarmed, and everybody was wondering what the cause of the trouble was. Their defeat was so disastrous we are told "Joshua rent his clothes and fell to the earth upon his face before the ark of the Lord, he and the elders of Israel, and put dust upon their heads." For once in his life Joshua seems to have complained. He says, "Would to God we had been content to dwell on the other side of Jordan." He urges, in his desperate prayer, that the inhabitants of the land would hear of it, and adds, "What wilt thou do unto thy great name?" But Jehovah rebuked him, and he arose. He says, "Wherefore liest thou upon thy face?" Our text tells us the *cause* of their disastrous defeat. I suppose you know the outcome. There was just one man in the crowd who coveted a fine Babylonish garment, two hundred shekels of silver, and a wedge of gold. Little did he think his greedy and foolish act was going to bring death and defeat to the whole army. Joshua, like a good general, had the culprit held up before the people, and he was punished as the Lord commanded, together with his sons and daughters.

Why do I bring this story in here? Let me tell you. Ever since the organization of the Anti-saloon League I have been wondering and inquiring in my mind *why* we should be thus defeated by the powers of evil. Why should the earnest and fervent prayers of God's people, of the W. C. T. U., of the mothers of our land, of the great and good men of our land, of our college professors, the teachers in our religious institutions, again and again be put to naught? For the past forty years or more I have told you of how the Lord has heard and answered prayer in personal work. Again and again has help come when I have been in tight places or crowded into a corner when there seemed no outlet. But when I have prayed that the Goliah of intemperance might be put down in the dust there seemed to be no answer. Men, women, and children—innocent women and children—who were in no way to blame, seemed doomed to suffer, not only for food and clothing, but for lack of education and everything else, and yet we were powerless. The enemy jeered at us, and they laughed us to scorn. They said in derision, "Did you with your few thousands think you could put us out with our millions—not only millions in money, but with the leading men of the nation *right under our thumb?*"

Perhaps that is a little hard and severe; but, dear brother, is it not true that the leaders in politics, even up to the President of the United States, did not *dare* to put a hand on the liquor-traffic? For years and years past our presidents, one after another, in their presidential messages have failed to recognize or suggest a remedy for the giant curse that is keeping down not only the American people but the whole wide world. Even I myself have been tempted *at times* to doubt the statement in holy writ that "there is a God in Israel." Why do we get answers to our prayers in everything *except* in regard to the liquor-traffic? Well, dear friends, of late I have been thinking it over, and I believe I have found the Achan, the "troubler of Israel," with his wedge of gold; and not only that, but *the eyes of the world* seem now to be centering on this Achan and his wedge of gold. I think I can point him out a little plainer by making an extract from a pamphlet just put into my hands, entitled "The Liquor-traffic; its Evils and Cure."* I wish every reader of GLEANINGS would send for this pamphlet. It is about the plainest and clearest showing-up of the liquor-traffic I ever got hold of. Here is the extract I make from it:

The saloon is defended for the revenue it brings to the national government, and no doubt many sincerely believe it to be advantageous to the government. This is palpably untrue. The liquor revenue law was enacted under the administration of Abraham Lincoln as a war measure, and signed by him with the distinct understanding that it would be repealed as soon as the exigency that seemed to justify it had passed. It was my privilege to hear this statement confirmed by Major J. B. Merwin, of Middlefield, Ct., who was present when Mr. Lincoln signed the bill.

* The above pamphlet is published by A. I. Truesdell, 101 West Wood St., Youngstown, O., at 50 cts. per 30 copies, or, say, 5 cts. for one copy.

In the presence of a large audience in Columbus, Ohio, in November, 1913, Major Merwin said in part:

"Mr. Lincoln hesitated in regard to signing that document, and said: 'I would rather lose my right hand than to sign a document that shall perpetuate the liquor traffic; but as soon as the exigencies pass, I will turn my whole attention to the repeal of that document,' and," said Major Merwin, "that was his design; that is what he said to me the last time I spoke to him, and he never would have signed it had he not had the promise of the members of the Senate and of the Judiciary Committees, and of the Military Committee, that it should be repealed at once, after the exigencies had passed."

The exigencies that called the law into being passed more than forty years ago, and during all these years our government has been in guilty partnership with this crime-breeding business

In an important sense the government assumes control and says: No man may sell liquor without paying for the privilege, and no man may manufacture liquor without paying a stipulated price per gallon; and that there may be no cheating, the government carries the keys to the bonded warehouses and keeps account of all stocks manufactured. It takes this liquor—blood money—not primarily from the liquor-dealer, but—the greater part—from the poor, who earn it by the sweat of their faces and at the cost of shortened lives, diseased bodies, impoverished and unhappy homes, and all the added ills that overtake the victims of the drink habit.

It is a shame and disgrace to the American republic. There is not the semblance of an excuse for the continuation of this guilty partnership. When this liquor revenue question was before the English government some years ago, Hon. Wm. E. Gladstone, "England's grand old man," said: "Gentlemen, you need not give yourselves any trouble whatever about revenue. The question of revenue must not stand in the way of reform. Give me a sober population, not wasting their earnings in strong drink, and I will know where to obtain the revenue."

Russia now furnishes the positive proof that Mr. Gladstone was right—that revenue is increased by eliminating the saloon. Here it is:

LONDON, Jan. 27, 1915.—A dispatch to Reuter's Telegram Company from Petrograd says that Mr. Kharitonoff, controller of the Russian treasury, speaking before the Duma Budget Committee to-day, declared that, owing to the great increase in the national savings due to prohibition, the extraordinary outlay occasioned by the war as yet had caused no great suffering in Russia.

Please notice that when it was proposed to Abraham Lincoln to let the liquor-traffic, for the time being, supply the needed revenue for the war, he said, "I would rather lose my right hand than to sign a document that will perpetuate the liquor-traffic." And this is clearly explained and well understood; but I suppose his assassination prevented his carrying it out as he certainly would have done had he been permitted to live. Now, here is where the *guilt* of our nation comes in. Here is where *Achan* shows himself. From the time of Lincoln down to the present, no one has had the courage to break away from this national crime-breeding partnership. We men who cast our votes are to blame—every one of us. If we did not all know this we *might* all have known of it if we had informed ourselves. Year after year the unholy alliance has continued. No wonder the author of this pamphlet says it has been a standing "shame and disgrace to the American people." Had Lincoln lived, no doubt he would have had the courage to issue an "emancipation proclamation" against the rum power, exactly as he did against human slavery, and thus might have saved the shame and disgrace that have been hanging over us for the past fifty years. Why did not the kind Father give us *another* Abraham Lincoln who was not *afraid* to face the giant? and shall we not unite in praying God that another Lincoln may come, and come speedily, to our rescue as a people and as a nation?

When the present war broke out there was trouble again. I believe I am not, as a rule, lacking in faith; but Satan kept crowding it on to me, and asking, "Is there *really* a God in Israel? If so, why does he permit this terrible wholesale slaughter of innocent people, including women and children, to go on?" and the war had gone on quite a spell before anybody even suggested that the Achan at the bottom was the liquor-traffic, and that Achan with his *wedge of gold* was the cause of the war, and that God would permit the war to go on as he did in old times until Achan would be pointed out and held up to the light of day—yes, held up to the scorn and indignation of every God-fearing man, woman, and child. Like Goliah, this giant had been parading before the dignitaries of the whole wide world. He kept saying, in the language of Boss Tweed, of former years, "What are you going to do about it?" and we were all afraid. No David appeared with his sling and pebble from the brook to smite him between the eyes. David said in his reply to the braggadocio, "Thou hast defied the armies of the living God;" and the Anti-saloon League, the W. C. T. U., the churches, the Sunday-schools, the Endeavor Societies, the Salvation Army, and good people the wide world over, can back me up when I say this Goliah, since the time of Lincoln, *has* "defied the armies of the living God." When we tried to cut off his sales on Sunday he grumbled and complained, and said we could not do it, and we did not do it. We passed laws, it is true; but this great Goliah managed to put in policemen who could not *see* the open sales on Sunday, even though there were hundreds of them in our great cities with hundreds and *thousands* of customers. He managed to get in policemen who favored his cause, and said, by way of excuse, that "the people" did not *want* the law enforced to the letter. Perhaps the

younger people who read these lines do not remember the notorious "nullification act" when the temperance forces had gotten a law that made a dead "open and shut" on the liquor-traffic, and had put on the lid, as it were, so there was seemingly no escape. Well, some "great men(?)" pretended *they* understood the law to mean what every *schoolboy* knew it did *not* mean. We let it pass because we could not (or *thought* we could not) help ourselves. The great Jehovah of former times seemed to have turned his face from us. *He* apparently did not see or did not hear; and we stupid mortals could not understand that he was just letting us go until we were *forced* to learn the lesson he was trying to teach us.

There is just *now* one ray of light coming: in fact, the extract I have made above indicates it. To the surprise of almost every good man and woman on the face of the earth, Russia—yes, poor stupid heathen Russia (as we were wont to call her here in the United States) all at once discovered that a *drunken nation* or a nation of drunkards is no match for a nation of sober people; and the Czar of Russia, without any preamble, and without consulting anybody, put on the lid, as we express it in the United States, and, without any warning, kicked out this liquor Achan with his shekels of *silver* and wedge of *gold*. He did not stop to argue about *revenue;* and, to the surprise of the liquor-soaked people of that great nation, they began to feel *better* and *happier* right away; in fact, like the poor demoniac who dwelt among the tombs, all at once they became "clothed and in their right mind."

Abundant figures have been given to show that if this reform keeps on for only a short time, more lives will be *saved* than have been lost in the war. It has been a terrible lesson to us all, God knows; but as you go back over the ground I have covered in this Home paper does it not seem probable that this terrible war was the only thing that *would* arouse our people and help them to consider the enormity of our guilt in permitting this thing to go on as we have done?

While I write, the United States is considering whether it will be safe to follow the example of Russia. The separate states, one after another, have taken it up and become "white" and clean at an unprecedented rate. In another place I have told you how Florida has just defeated the giant, and has come out in plain and unmistakable terms for freedom from the tyrant. Ohio has just been defeated by trickery and fraud; but she is rising in her might, and bids fair to overthrow the giant before many months have passed. Are you, my friends, whose eyes rest on these pages, ready to show the courage of David in olden times, and declare as he did, "Thou hast defied the armies of the living God"?

"WHERE THIEVES BREAK THROUGH AND STEAL," ETC.

Mr. A. I. Root:—Greetings to you in Jesus' name. I am a regular reader of GLEANINGS and also a preacher beekeeper. Two years ago I took off a little over 2000 lbs., part extracted and part section honey, from 16 colonies, spring count, but last year the drouth hit us so that I got no surplus at all; and instead of the 22 colonies with which I started out in the spring I had only 12 left. Something happened to me last fall that was enough to make "even a preacher" feel a little cross. Some rascal of a beekeeper got into the place where I had my bees, and stole the three best colonies out of fifteen that I was getting ready for winter. They were two-story high, and weighed at least 100 lbs. each. That is worse than stealing honey. I offered a nice reward, but never got any trace of them.

I read with interest Our Homes and Health Notes in GLEANINGS. I see that you have trouble to get your hands clean after getting black auto grease on them. My boys are just now manufacturing a hand-cleaner that I believe will solve this problem for you much more pleasantly than you are now trying to solve it according to yours in GLEANINGS for March 15. I am sending you a 1-lb. 10-cent box to-day. Use it according to directions, and see how easily the grease can be removed from the hands. We are making it from our own formula, and it is the best thing out for such purposes.

My oldest son is now attending Western Union College at Lemars, Iowa, preparing himself for the ministry. The other two are still at home attending high school. What they make out of the soap proposition will be used to put them through school. If after a thorough test you can say a good word for this article I am sure it will be appreciated.

My bees came through the winter finely. When I set them out two weeks ago, several of the colonies had a few young bees hatched out, and every one of the twelve had patches of brood in from one to three frames. This is the first time I ever had hatching brood in the cellar.

Geneseo, Ill., April 1. GEORGE A. WALTER.

The soap is certainly ahead of anything else I ever got hold of. When I am in a hurry it is certainly a great help. But what you say about thieves stealing your bees just to get the *honey* worries me. If, in answer to your reward offered, he should be caught and punished, the good to the world would not *compare* with getting him converted, say, by Billy Sunday or some "beekeeper preacher." "He that converteth a sinner from the error of his way, shall save a soul from death, and shall hide a multitude of sins." My good brother, have not you and others permitted *saloons* to flourish unhindered in your midst?

HIGH-PRESSURE GARDENING

EARLY OHIO POTATOES DOWN IN FLORIDA, ETC.

Up here in the North my favorite potato for years past has been the Early Ohio. A year ago I had trouble about getting seed. I finally got some for a big price, but it was poor seed at that. They were planted in our garden right under the irrigation-pipe, and made a magnificent growth; but potatoes had been grown in this garden for years past. Besides, it has been heavily manured with stable manure. We had a good yield; but they were the scabbiest lot of potatoes I think I ever saw. The garden was plowed before I returned from Florida, and was plowed when it was wet. The potatoes squeezed themselves into all sorts of shapes and among the lumps and clods; and after I got our overhead irrigation, as you may remember, the potatoes took a second growth. Mrs. Root suggested we should give them all to the pigs and chickens; but when we found the *quality* was so much better than any nice smooth potatoes we could buy, we finally decided to use them for the table, paring off the scab and the knobs that had started out with a second growth. Well, these Ohio potatoes, notwithstanding their forbidding looks outside, cooked up so dry and floury that we decided to take a peck with us to Florida. I think they were dug just before leaving, about Nov. 1. As we had other new potatoes, some of the Early Ohio, brought from Ohio, did not get used till January 1; and to our surprise some little sprouts had started; and Mrs. Root suggested that we plant them and see what the *Florida* crop would be. I cut them to one eye so as to make them go as far as possible. They came up very promptly; and from their great luxuriance they attracted the attention of visitors all winter, and along in April they were ready to dig. They made a slow growth because of the frequent cold rains; but it was one of my happy surprises to find the cleanest, smoothest, handsomest Early Ohio potatoes I ever got hold of.

Let me repeat what I have said several times. In Florida, at least in Manatee County, there is no such thing as potato bugs. They have not been "invented" there yet; and there is also no such thing as the flea-beetle that disfigures and eats holes through the potato leaves all over the North. And there is also no such thing as the potato scab—at least not the same kind of scab we have here in the North. I took a basketful of the potatoes up to our Bradentown groceries, and everybody who caught a sight of them wanted them. The quality was quite equal to the looks. But there was one drawback. The largest ones were more or less hollow. I suppose this was owing to the rapid growth. I think that this can, perhaps, be corrected by planting them so close that they will not grow very large.

Now just one thing more and I am through with my potato story, for the time being. These Early Ohio potatoes were dug about the middle of April. We brought some of them with us; and just now, May 18, some of them show evidences that they are going to sprout; and I think I am warranted in saying we can dig potatoes here in the fall, carry them down to Florida, and by the first of January they will be ready to plant. Perhaps I should explain that they stood on a north porch—the coolest place we could find, through November and December. Well, the potatoes grown in Florida may also be *brought north,* and, if exposed to light and warmth, they will be ready to plant again in thirty days or more, thus getting two good crops in one year by moving them from the North to the South.

One thing more: The poor scabby potatoes grown here in the North, if planted in the loose soil in Florida, will give a nice clean crop. There may be some danger, it is true, of introducing the scab in the Florida soil; but if necessary the treatment with formalin would correct this.

Now just one thing more: A neighbor of mine said he had planted potatoes in Florida in September, and had a nice yield. Well, I have planted them from November 1 to along in February, and had a satisfactory yield; and I am told that potatoes planted in April often give good yields in Florida; and I think it quite likely, when we *learn how,* we can plant Irish potatoes in Florida *every day in the year, and harvest* them every day in the year, as we do with the dasheens.

MAKING TWO TREES GROW WHERE NONE GREW BEFORE; SOME GOOD NEWS IN REGARD TO JAPANESE CHESTNUTS.

Dasheens, no doubt, are all right; but don't you think a few words on trees and arbor culture occasionally would help a worthy cause? To make two trees grow where none grew before is a part of my mission in life.

If the old adage be true, that "he is a benefactor of his kind who causes two blades of grass to grow where but one grew before," what shall we say of him who causes two trees to grow where none grew before?

Some one has said it would pay any state to hire a forceful man to go up and down the same, and simply say to every man he meets, "Don't plant soft

maples," to which might be added, North Carolina poplars, and other quick-growing and short-lived trees.

The beekeeper should plant, for sturdy beauty, sweet bloom, and large yield of honey the European linden—a hardy tree, and a joy to look upon; also the American tulip-tree, miscalled the tulip poplar, fairly rich in honey, and it bears much pollen—one of our most majestic trees, and pure American—the only relative being a species in Japan.

And then when you think of the boys and girls, do not forget the nut-bearing trees, including a few of the Japanese chestnuts, which are not affected by the blight, which is rapidly destroying the chestnut groves in this part of the country.

For decorative and formal effects plant the "gingko," the sacred tree of India and Japan. This is a rapid grower, known also as the "maiden-hair," because of the shape of its leaves. To my knowledge it thrives perfectly as far north as Newburgh, N. Y. For the same purpose the bald cypress should not be overlooked.

Now, brother farmers and bee-lovers, get busy and adorn that long lane or stretch of road, in which you are interested, with trees, and future generations will rise up and call you at least a lover of your kind. C. H. GUBBINS.

Philadelphia, May 7.

The single statement in the above, that Japanese chestnuts are not affected by the terrible blight that threatens to destroy the American chestnut, is indeed good news if true. Will those who know something about it please give us further information? In years past I have mentioned my fondness for chestnuts, and I want to say now that I have enjoyed them after I have finished both breakfast and dinner, almost continuously since the new crop came in last fall. Just as soon as I get a lot of chestnuts they are put into an oven and roasted enough to destroy the chestnut weevil. This generally also prevents any tendency to mold in such a climate as that of Florida. But to make sure against mold as well as the weevil, we give them another roasting some time during the winter. With this protection I think I can have them almost if not quite all the year. In fact, I have a few now, May 11. Some of you may object because they are hard on the the teeth. Well, I have a dentist, at least once a year, or oftener, look after my teeth, and see that they are in good trim. I have not had the toothache for years, and do not expect to have it. Well, when I get up from the table to go over the garden or out among the poultry, I put a handful of chestnuts in my left-hand coat pocket; and, no matter how hard they are, by taking time I can chew them until they are just a delicious creamy mass in my mouth, as Terry, Fletcher, and others have described, and in this way I greatly enjoy them. I am sure they are very healthful. Of course so much chewing calls forth an extra supply of saliva. Notwithstanding the blight last season, the price of chestnuts went away down in the Cleveland markets; in fact, there was almost a "glut" at one time, in chestnuts. I bought a couple of quarts when first on the market, and then, later, put in a full supply for winter. I have planted a good many chestnut-trees already; but if what is said above in regard to the Japanese chestnut is true I intend to plant more; and this reminds me that I have both chestnut and pecan trees in bloom in our Florida garden for the first time this spring.

DASHEEN TUBERS ACROSS THE GREAT WATER NOT A FAILURE AFTER ALL.

It seems it is not a very difficult matter to send tubers, if properly seasoned and packed, to foreign nations after all. See the following letter from one of our missionary friends:

AMERICAN LOARD MISSION IN SOUTH AFRICA. RHODESIA BRANCH.

Dear Friend, Mr. Root:—In response to your suggestion in GLEANINGS for Jan. 1, 1915, p. 41, that I let you know how I packed the amadumbe or dasheen tubers that I sent you, I will say that I too am forgetful, and cannot feel quite sure that I remember; but I think it was like this: I chose very small tubers (I think they had been dug some time), and wrapped each in enough paper so that several thicknesses, say five or six, should separate them from each other when packed. Then I packed them in a pasteboard box lined with corrugated pasteboard such as Burroughs, Wellcome & Co. place their bottles of tabloids in, and then wrapped this in paper.

I may remind you that you also succeeded, at least *once*, in sending dasheen tubers across the seas, for you sent some to me which arrived in fine condition, and their offspring are now doing well in my garden. So far I fail to see any difference between those that you sent to me and those that I sent to you; but we have not compared them very thoroughly, perhaps, as yet.

I am interested in what you say of cassava, Jan. 15, 1915. I have ten varieties of manioc growing in my garden. I wonder if any of them are identical with your cassava. Some of mine are sweet and some very bitter. W. L. THOMPSON.

Mount Silinda, Melsetter, S. Rhodesia, March 17.

The amadumbe mentioned is growing finely in our Florida garden; and while it looks a little different from the Trinidad dasheen, the tubers when baked are substantially the same thing. Right near the South African dasheens is a queer-looking plant sent by a missionary from South America. It always attracts the attention of visitors because of its rapid growth and queerly mottled leaves. The manioc cuttings were received, and planted in our Florida garden. While we are considering the cassava and its value as a food product the following letter may prove to be of value.

CASSAVA HONEY, ETC., IN PARAGUAY, SOUTH AMERICA.

Dear Mr. Root:—When I read your remarks in GLEANINGS for January 15 on cassava as a food it occurred to me that you might be interested to hear about the ways in which that plant is used in Paraguay. The cassava (or, as it is called in this

country, "mandioca") is the staple food of the Paraguayan, whether he be Indian or mixed Indo-Spanish, and is, consequently, extensively grown all over the country. Of it the native makes his bread, his tapioca, and his starch, and on it he feeds his horses, cattle, pigs, and poultry, and even his dogs and cats. The ordinary method of cooking mandioca is to boil it after carefully removing all the thick peel; and so cooked it is a perfect substitute for the potato when eaten with any kind of meat. It can also be baked or roasted, as you describe, without peeling; and when peeled, cut in thin slices, and fried in deep fat, it is just as good as potato chips. Cold boiled mandioca also, cut up and fried, is delicious—much more so than potatoes so cooked—at least my husband and I think so now after five years' experience. You say that the plant you tested was of two years' growth. Here it is seldom left longer than one year, as after that time it does not cook soft and mealy, but assumes a waxy or soapy consistency after boiling. If you wish to taste mandioca at its best you should dig up some that has been planted only one year. I think perhaps even Mr. Root would admit that it was at least equal to potato then. It should be peeled carefully, washed, and put into boiling water with salt, and boiled for 20 to 30 minutes. As soon as it is cooked the water must be strained off and the vegetable allowed to dry. The water it is boiled in must be thrown away, as it is said to contain a strong solution of prussic acid. I do not know if this is true, but I have no wish to test it practically. Of the many other ways in which mandioca is cooked here I will give you one or two which I have tried myself.

1. Peel and wash the mandioca; cut it into pieces of a size to go easily into the meat-mincer, and grind it as fine as possible, first placing a cup or bowl under the handle end of the machine to catch the milky juice which comes out freely as the vegetable is ground. After grinding, unscrew the machine from the table without taking apart, and add the liquid still remaining in it to that in the bowl. If this is allowed to stand for a few minutes the starch (which is really *tapioca*) will be found to be precipitated with a clear yellowish water on the top. This water should be thrown off and fresh poured on, stirring up well, and again allowing the mixture to settle. In a few minutes more this water also can be thrown off, leaving the white starch, which may either be dried by evaporation in the sun, but *not* on the stove, as this turns it to a kind of gelatinous substance, or used at once as follows: To two tablespoonfuls of the wet starch add enough cold milk to mix to a thin paste, putting the remainder of one pint of milk on to boil, with a little salt, and sugar to taste. When boiling, pour in the starch and boil until it thickens, stirring all the time. When thick enough, take it off the fire and add a beaten egg. Pour into a deep pie-dish or shallow bowl and bake until done. This is very nice with fruit pies and puddings, stewed fruit, jam, or even by itself.

2. To make a tapioca pudding the starch must be quite dry and powdery. Boil the milk in a saucepan, with a little salt, and sugar to taste, and when boiling sprinkle in the starch slowly, from the hand, stirring all the time. When the tapioca is transparent take it off the fire, add one or two beaten eggs, pour all into a deep dish, and bake till nicely browned on top. Of course one can add any flavoring to either of these before baking.

Of the mandioca that has passed through the mincer, very nice fritters can be made in the same way as those of raw grated potato, adding sufficient well-beaten eggs to make them nice and light. Flour may also be added at discretion. But the principal use to which I have put this "afrecho," as it is called here, is to make bread of it.

3. Flour, owing to several causes, has been very expensive for many months, thus raising the price of bread; and as we eat a good deal of bread it became necessary to find some material which would "reduce the cost of living." So I experimented with this afrecho, with flour in various proportions, and found it very satisfactory, if mixed in the proportion of 3 to 1—*i. e.*, ¾ lb. of flour to ¼ lb. of mandioca. This is for baking-powder, or sour-milk-and-soda bread. I do not use yeast at all. I have also mixed maize meal with the above, using ½ lb. flour and ¼ lb. each of the other ingredients. Proceed as in ordinary biscuit-making, and bake either in small cakes or in a loaf. The latter requires one hour to bake. Cold cooked mandioca, well mashed, can also be used to make "scones" in the same manner as cold potatoes are used. It can be ground in the mincer; but before doing so the stringy substance in the center must be removed.

In a former number of GLEANINGS you mentioned the fact of Mr. and Mrs. Terry using a gallon and a half of honey in a year, implying that this was a record. What will you say when I tell you that my husband and I (and our cat) eat *thirty* gallons of honey in one year? I mention the cat because it is ravenous for honey, eating mouthfuls of bread and honey "turn about" with my husband. It sits beside him, sharing his chair; and if he neglects to give it some as soon as he has reached that stage of the meal, it bites his hand gently, or puts out a paw to intercept the coveted sweet on its way to its master's mouth. If these methods fail it jumps on to his shoulder and proceeds to lick his hair, holding the head steady meanwhile with its claws, and this performance always results in a big piece of bread and honey being given to the spoiled animal. We have no children, so that the example does no harm, and only amuses us.

We use honey as a substitute for sugar in nearly everything, even in tea and coffee, and in jams, jellies, and marmalade, in all of which it is very satisfactory. I have also used it in frying meat and vegetables. It gives them a delicious flavor, if too much is not used. A tablespoonful is quite enough, as a rule.

I may add that I enjoy reading GLEANINGS as much as my husband does, though I have nothing at all to do with the bees; and I always read Our Homes and hope you will be spared to write that part for many years to come.

GERTRUDE M. BROWN.

Villarica, Paraguay, March 27.

The cassava grown in Florida is one of the easiest plants to grow I have ever gotten hold of. Along in February or March we cut the canes in pieces about as large as corncobs. These are bedded close together like sweet potatoes. When warm weather comes in April almost every cutting will make a nice little plant if grown in good soil. These are then planted out four feet apart each way; and with very little care they will crowd out the weeds and everything else; and they make a very fair growth on the Florida sand without any fertilizer; but of course they do better on well-worked fertile ground. On page 85 I made mention of a root as long as my leg and nearly as big; but this was the growth of two winters. We cooked some of this big root, but did not see but it was just as good as the little tubers say a foot or two long and an inch or two in diameter. We now have a vegetable-cutter for grinding the roots for poultry. It came from Sears,

Roebuck & Co., and cost only $3.40. The chickens take it a little more readily in this shape — especially the smaller ones. The ground roots can be easily chopped up with middlings so as to make a mash.

"JABOTI CABA," A NEW SEMI-TROPICAL FRUIT FROM BRAZIL.

Last fall one of our California friends wrote me about a wonderful new fruit that they were just then introducing in California. He said the price then was pretty high, but it promised to be something of great value. Not long afterward I saw a description and photograph of the tree in an issue of the *Technical World*. Its peculiarity that distinguished it from all the rest of the trees of the world is that the fruit, instead of being borne on the end of the branches, is on the trunk and branches like a cluster of grapes. The tree grows to a height of forty feet or more, and commences to bear when about the size of a common currant bush. In order to get information at first hand I wrote to the Department of Agriculture, Washington. In response they sent me two little trees. Below is the printed matter that we copy from the label attached.

Myrciaria Cauliflora.. Jaboti caba.—From Rio de Janeiro, Brazil. Collected by Dorsett, Shamel, and Popenoe. Remarkable fruit-tree 40 feet high. Popular among Brazilians. Maroon-purple, thick-skinned fruits resembling grapes with delicious, vinous, white pulp, borne on trunk, branches, and twigs in such numbers as at times almost to conceal them. May stand light frosts.

On the opposite side of the label it reads as follows:

This plant is entrusted to your care for experimental purposes. The Department wishes your assistance in determining its possible value.

You may be sure I regard these two little trees as a prize. They were sent by mail with soil attached like a potted plant. For quite a time they did not seem to make any growth, and I began to be worried about them. Finally some tiny pinkish leaves appeared on the under side of the branches, clear out of sight, and they grew pretty well until we had a prolonged drouth for something like a month. When I left my Florida garden, about May 1, I feared they would die in spite of the careful watering I was giving them. Watering is all right if applied judiciously; but it does not take the place, especially in the South, of cloudy weather and gentle rains to make things *grow*. You may imagine how it rejoiced my heart when I got the following letter from our friend Wesley:

Mr. Root:—We had a fine rain on the 9th of May. It rained all day and night, and since then it has been raining; the ground is good and wet, and in fine condition.

The jaboti caba is just as pretty as can be, and just as green as grass. They are beautiful.

I've got a job with Mr. Seller in the tomato-field. The chickens, ducks, and everything are getting along finely. The cactus that you paid $1.75 for has two buds, and the other has from four to five leaves.

Manatee, Fla., May 14. WESLEY WELCH.

Later.—I have just received a letter, dated May 17, from my near neighbor, M. C. L. Harrison, who says, "The feterita is heading, and looks fine."

ANOTHER GREAT AND GOOD MAN GONE.

We make two clippings from the *Rural New-Yorker*, just at hand, as below:

DEATH OF PROF. VAN DEMAN.

Professor Henry E. Van Deman, well known to readers of *The Rural New-Yorker* as a frequent and valued contributor, died at his home, Washington, D. C., April 28. He was born at Concord, Ohio, his early life being spent upon his father's farm, where he gained his first knowledge of fruit-growing, both his father and grandfather being practical orchardists. Professor Van Deman excelled as a judge and student of varieties. He knew fruit as few other men do. What the opinion of a justice of the Supreme Court meant at law, a decision by Van Deman meant at a fruit show.

Later.—We clip the following from the *Nut-grower* for May in regard to Professor Van Deman:

Professor Van Deman was a native of Ohio. He served through the civil war with the volunteer troops of that state. His services as a judge in fruit exhibitions were greatly in demand, and his work along this line covered nearly every state in the Union. He served for a number of years as Chief of the Division of Pomology.

For many years past, when reading an article in regard to the progress of fruit, horticulture, etc., I have been in the habit of looking to see if I could find who the writer was, and what was his authority. Whenever I have found the name of H. E. Van Deman I have always felt sure the article was sound and reliable, and no doubt others have felt the same way. I have not been able to learn as yet what his age was when death stopped his work; but I think he must have been somewhere in the 70's.

About a year ago I read with great interest an article in the *Rural New-Yorker* from Prof. Van Deman in regard to the possibilities of the papaya. Among other things I think it stated that some specimens had borne fruit inside of a year from the time the seed was planted. I cut out the article and submitted it to my good friend Reasoner, of Oneco, Florida. He replied that there was no question but that the statements were exactly true, coming from such good authority; and I have the promise of some of the improved varieties as soon as they can be had. The trouble with the papaya

is that the seed may or may not produce fruit like the parent; and until quite recently no one has been able to disseminate the improved varieties by grafting. Professor Van Deman, however, informed us that it was then being done satisfactorily at the Government station in Miami, Fla.

The picture on page 400, May 15, was from a seedling that just *happened* to produce that sample of large, beautiful, luscious fruit.

GOOD NEWS FROM FLORIDA; "GOD'S KINGDOM COMING."

While a boy in my teens I studied geometry, and to get some practical as well as theoretical knowledge of surveying I went around several days with our county surveyor, good old Zacary Deane. I distinctly remember a little story he told me of a certain people somewhere that never seemed to know when they were whipped. He said they were so stupid that *they kept right on fighting*, and by and by licked the other party. The experience of the Anti-saloon League down in Florida brings the matter to mind. During the past winter we tried to make the great city of Tampa dry; but the big giants (the liquor party) whipped us once more, and, as the world looked at it, disastrously. But my good friend C. W. Crooke was like the people in the story — he did not seem to know he was whipped, or forgot it, for he went right on with the fight, and finally the Davis bill "won out." It is too long to give it a place here in full: but the following, clipped from a letter just received, covers the ground pretty well:

The liquor men of Florida are *stunned*.

The saloon must die September 30.

There will be left only liquor-stores selling in sealed packages.

Profits will be cut so small that 200 of the 291 saloons will die.

County-option elections will likely kill the other 91.

The Davis bill (enclosed) passed by 2 to 1 in both Houses.

The liquor lobby cannot live under the Davis bill.

The Tallahassee *Democrat* says: "The cause of prohibition and good government are immensely indebted to C. W. Crooke for his effective work during the present session of the legislature."

Hon. D. C. McMullen writes: "I wish to commend the work done by the Anti-saloon League, and by yourself in particular, in passing the Davis bill, which I believe will effectually break the power of the liquor traffic forever in Florida."

Florida *Metropolis* says: "Open saloons in Florida will be abolished five months from Friday."

Tampa *Tribune* says: "If enforced, the Davis bill means state prohibition."

The *Times-Union* says: "The Prohibitionists have won out at this session. The Davis bill went through like a flash."

C. W. Crooke,
State Superintendent Anti-saloon League.
Jacksonville, Fla., May 1.

HARRIS W. JENNINGS, SPRINGDALE, CT.— LOOK OUT FOR HIM.

I clip the following from the *Rural New-Yorker:*

I see under the heading of Publisher's Desk of November 28 that W. K. R. is another victim of Harris W. Jennings, Springdale, Ct. I received an earnest quick order for 50 complete Langstroth hives. He seemed so honest and sincere I trusted him. Well, to this day I have not heard from him. What do you think can be done? He is the first man I ever dealt with who proved dishonest. I have learned my lesson. W. K. R. is fortunate that he lost only $5. H. J. G.
New York.

Nothing can be done except, perhaps, a lawsuit, but the amounts involved are not large enough for that expense. The attention of the Postoffice Department should be called to the matter.

On asking our manager if he knew anything about the man, I was informed that the A. I. Root Co. is out over one hundred dollars by this same Harris. I hope it is true there are *few* such cases among beekeepers. And this gives me the opportunity to say that if any of our readers have lost any money by those advertising queens, bee-supplies, or anything else in our line, if they will give a brief account of the transaction, and direct it to A. I. Root personally, I will do all I can to help you get your money. If nothing can be done, the person should have his name in print so others may not be robbed of their hard earnings in a like manner.

"A CORNER IN HONEY."

On page 414 of our issue for May 15 our readers may have noticed something that looks like "a pretty big yarn." As soon as I saw it I made investigation, and called for the letter written by friend Muckle. In giving the date, 1914, his figures were so indistinct that a mistake was made. Very likely he meant to say 1913; but even if he had a whole year his record was a wonderful achievement. I have written him, and he will doubtless give us the full facts in regard to the matter.

A KIND WORD FROM THE MOTHER OF A FAMILY OF FOURTEEN.

I cannot give up that paper. Everything is good in it. I wish everything Billy Sunday says could be in every paper. I like to read it. A. I. R. does much good by his writing about how to live long and be happy while we do live. Everything he hears he writes about to help others. My family of 14 like his writing.
Wanatah, Ind. Mrs. S. P. Howell.

DASHEENS MAILED TO NEW ZEALAND RECEIVED IN GOOD ORDER.

Very many thanks for dasheens, which arrived in perfect order, one actually starting to grow. I wish you every success. Stephen Anthony.
Coromandel, N. Z., April 7.

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Gleanings in Bee Culture



Under the Brow of the Sierra Nevadas. See Page 487.

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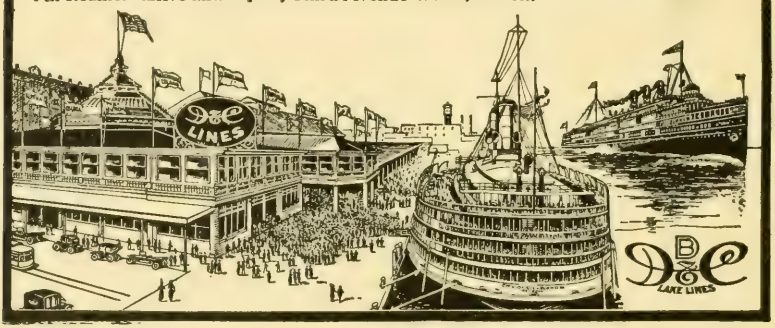
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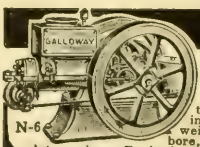


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Gleanings in Bee Culture

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EDITORIALS

So far as we can learn, all the best grades of comb honey have been sold, and there is a strong demand for the new crop. The market is well supplied with extracted, and producers will do well to run largely to comb honey this season.

We call attention to four notable articles in this issue which we hope every one of our readers, especially those of the specialist class, will read and read carefully. We refer to the articles by J. E. Hand, R. F. Holtermann, E. F. Atwater, and J. A. Green. We may not in all cases agree with them, but we may be able to pick out some ideas that we can incorporate in our own beework.

We understand that the Minnesota Legislature has cut the appropriation for the University of Minnesota by $600,000. All departments of the University will be affected, of course; but the division of bee culture is expected to go on as originally planned, thanks to President Vincent and Dean Woods. This speaks well for the comparatively new branch, and speaks volumes for the good work done under the direction of Prof. Francis Jager.

Minnesota Beekeepers, Take Notice

The State Inspector of Apiaries of Minnesota, Chas. D. Blaker, of Minneapolis, requests that all beekeepers communicate with him, if they have or suspect they have disease in their apiaries. Mr. Blaker fears that many do not know who the inspector is.

Honey in the Ice-box

One seldom hears of a dispenser of soft drinks keeping his ice cream where the hot sun can get at it, yet the opposite and equally foolish practice of refrigerating honey seems to be fairly common. An eastern provision dealer of good sense in other lines is reported to be showing his honey in a glass case kept cold by ammonia-pipes.

There is no need to tell beekeepers that honey should be kept in a warm dry place — never in the ice-box. Not only is it an absorber of moisture, but continued cold is likely to granulate both comb and extracted. Where merchants through ignorance are found to be handling their stock in this manner a kindly and explanatory word from beekeepers should open their eyes.

A Bee's-eye View of Canadian Apiculture

The value of Canada's work for beekeepers is about to be increased by the erection of an apicultural laboratory fitted with every requisite for research. This new building is to be located in connection with the experimental apiary at the Central Experimental Farm, Ottawa, where the problems of beekeeping are being investigated. Notice of the improvement is given in Exhibition Circular No. 18 by F. W. L. Sladen, Dominion Apiarist.

Another feature of the recent bulletin is its almost complete directions for beginning beekeeping, together with a sketch of the craft and its bearing on fruitgrowing, all within the compass of four pages. The matter is handled so concisely and yet so thoroughly that one could begin beekeeping on a small scale with no other information than that in the folder.

Langstroth on the Hive and Honey-bee in Spanish

Gustavo Gili, Barcelona, Spain, has just published a Spanish translation (La Abeja y la Colmena) of Langstroth's classic, revised by Dadant, in which the translator, M. Pons Fábregues, has carefully followed the English original, with only occasional slight changes and explanations necessary

for the better understanding of the Spanish beekeepers. M. Pons Fábregues is a well-known beekeeper of Spain, an indefatigable advocate of the modern system of beekeeping, and formerly editor of the Spanish bee-journal *El Apicultor*. He has published a number of other works on beekeeping, among them a book on the honey-bearing plants of Spain (Flora Apícola de España), probably the first of its kind ever published in the Spanish language.

"La Abeja y la Colmena" is attractively bound in cloth, and sells for 10 pesetas (about $2.00), and will, no doubt, prove of great interest to Spanish and Latin American beekeepers.

A Correction

GEORGE W. YORK, in acknowledging his thanks for our editorial writeup of his political career in GLEANINGS for May 15, page 391, makes a couple of corrections which we deem only fair to place before our readers.

For example, we made the statement that when he became a member of the city council at Sand Point, Ida., he "initiated a movement to clean out the undesirable element of the town." He protests that he did not "initiate a movement," but he did back up the mayor.

We made the further statement that, while he "bore the Republican label, he was still a Prohibitionist at heart." This might be construed to mean that, while a third-party Prohibitionist, he sailed under Republican colors, and, therefore, was not sincere. In regard to this he says he went in with the Republicans in good faith—worked as a Republican, because that party had put prohibition in its platform. As some wet Republican newspapers might try to make capital out of this, we gladly make this correction.

Direct Advertising for the Honey-producer

ADVERTISING, like the discourse we studied in Cæsar, can be divided into two classes—direct and indirect. The latter casts bread upon the water in the hope that in due time it will turn up. Judicially inserted, carefully written advertisements in daily and weekly newspapers on streetcars and on billboards undoubtedly have a heavy pulling power, which could well be studied and utilized by the honey-producer.

The direct form of advertising sharpshooting aims to capture the attention of the individual prospect by any one of the thousands of different means. The well-known envelope sticker "Eat Honey" is too familiar to need description. In this case the mere suggestion calls to the mind of the recipient the thought of honey, and its own instinctive reaction is relied upon to do the rest.

The envelop enclosure is another form not too expensive, which apparently has been employed by none but the most extensive honey-distributers. A small leaf, folder, or booklet, just large enough to fill the envelope, is inserted along with the letter, and goes within the one ounce carried by Uncle Sam for two cents. If the matter is interestingly worded and attractively printed it is bound to catch the attention of the one to whom the letter is addressed.

A small blotter is something of use in every home. A neat calendar finds its place on every wall. These, if they convey the information that So-and-so has his honey on sale in every grocery store, will keep pounding it into the brain of every prospect every day he sees it. It is refreshing to receive frequent little advertisements of this nature full of good will and business-like optimism. It shows that the honey-producers are alive to the opportunities in this kind of advertising.

Co-operation in Massachusetts

MASSACHUSETTS apicultural work is all centered in one office, several phases widely different in scope coming together at one point, even though supported by many different appropriations, according to Dr. Burton N. Gates, writing in a recent number of the *Journal of Economic Entomology*.

First in the centralized organization of beekeeping as a whole are the courses of the Massachusetts Agricultural College in entomology and beekeeping. A practical museum and a beekeeping library are maintained in connection, as well as the laboratory, an apiary of fifty colonies. The work of the Entomological Experiment Station and of the extension service goes on side by side with that of the school.

The features of the college interlock with those of the inspection service as well—by no means a small part of the state work for beekeepers. A slightly different inspection policy obtains in Massachusetts. The inspectors start with well-known centers of infection and canvass every apiary, slowly widening out in circles until the limit is found. This plan seems to get results, for the beekeepers are becoming more satisfied and prosperous, and, according to the inspectors' report for 1914, many parts of the

state are approaching a disease-free condition. Dr. Gates is now looking forward to the time when the state will be relatively rid of infection altogether.

That the activities of the states for the benefit of beekeepers are tending in every case toward a centralization similar to the policy of Massachusetts is the belief of GLEANINGS. Only by concentrating efforts in this manner can each department realize the full benefit of co-operation with every other department and the complete efficiency we all look forward to in beekeeping be attained.

Death of Prominent People in the Bee-supply Line

SINCE our last issue, three people prominently connected with the bee-supply business have died. The first was Mrs. H. G. Acklin, in charge of the A. I. Root branch at San Francisco. The next was Mr. O. E. Mayfield, of the Toepperwein & Mayfield Co., San Antonio, Texas; and the last, Mr. W. T. Falconer, of the W. T. Falconer Mfg. Co., Falconer, N. Y. It is not often that three people so prominently connected with the business have passed away in so short a period.

Referring to the San Francisco office, a competent person is in charge there, and the business will continue as heretofore. The Toepperwein & Mayfield Co., when Mr. Mayfield became indisposed on account of overwork, installed a manager, and the office has been in good hands for some time back. Its policies will be continued as heretofore. The W. T. Falconer Co. is a strong organization; and even though it has lost its founder, after whom it was named, it goes without saying that there will be no change in its policies.

We will try to have a more elaborate sketch of the persons named in our next or subsequent issues. It only remains for us to say that our sympathies go out to all the friends and relatives of the parties named.

Aster Stores not necessarily bad for Wintering

WHILE this subject is, perhaps, a little out of date, yet because the discussion of it is so fresh in our minds it may be proper to call attention to some new developments just now brought to the surface which may be forgotten or overlooked.

There has been a general consensus of opinion to the effect that aster stores, while not necessarily bad, are undesirable for winter, to say the least. There has been considerable conflict in the testimony. A careful analysis of the reports goes to show that when bees winter poorly on the aster there is usually something else mixed with it. That "something else" may be goldenrod or swamp-milkweed, or both. The combination is evidently bad. Unfortunately one or two of our yards had aster, swamp-milkweed, and goldenrod all together. One beekeeper reported that a combination of goldenrod and aster was very bad. This last year he had the combination and lost heavily. In some previous years he had only aster, and his bees wintered nicely. At one of our yards we had considerable milkweed with the aster, and the bees showed signs of dysentery as early as February.

Mr. A. C. Ames, of Peninsula, Ohio, one of our state foul-brood inspectors, was located near the aster swamp. He had neither goldenrod nor swamp-milkweed, and yet his bees wintered well.

We shall be glad to hear from any of our readers on this proposition. We will hold the reports when they come in for fall discussion. If it is shown that a combination of aster and goldenrod is bad, then the remedy is to extract before the bees go into winter quarters, and feed sugar syrup or some honey of good quality, and then use this combination of aster and goldenrod or swamp-milkweed, or both, for spring or summer feeding.

Freaks of the Weather

SOME two or three weeks ago it was getting to be very dry in and about Medina. Some days it would cloud up, and we could hear rumblings of distant thunder, but nary a drop of rain at Medina. Sometimes the dark clouds would be north of us, and at other times south; but every time we seemed to be missed. The tables are now turned. Every time there is rain anywhere along the central and eastern states, Medina gets a dose. The United States Weather Bureau maps to which we referred on p. 349 of our May 1st issue that are coming in to us every day, show some peculiar freaks of the storm-bound area. They are now showing that Medina for the last few days has been on the edge of the areas of precipitation. Sometimes we are in the center of it; but we always get it if any place does.

The weather maps show that Dame Nature has a way of equalizing. If any particular spot has been "neglected" or skipped, there come times a little later when that neglected spot will get rains if any place within 200 or 300 miles gets it at all.

We only wish we could take our subscribers and have them look over our shoulder at the U. S. weather maps, and see how the rains spread over certain areas of the United States. Apparently the rains fall in a sort of haphazard way; but a little study shows that the deficiency at one time is fully made up at another. If there is a long drouth in early spring it will be followed by a heavy precipitation in late summer or early fall. In the same way, a very cold winter is apt to be followed by a hot summer. Of course, there are exceptions to these general rules; but it is wonderful how Nature sooner or later equalizes her "showers of blessings."

In like manner an abnormal hot spell in early spring will be followed by cold and frosts. In April of this year we had two weeks of " awful hot weather." A few days after, we had cold and frosts.

Danger in Sending Old Comb by Parcel Post

We have repeatedly advised our readers that we cannot accept shipments of old combs to be rendered into wax. We should be glad to do this were it not for the fact that our home apiary is located within a stone's throw of the railroad station, and sooner or later a box would come in bad condition—honey leaking out on the platform. If those combs came from hives containing foul brood, such leakage would be a source of very great danger to our bees.

The carelessness that some beekeepers show in sending old comb by parcel post is beyond our comprehension. Pieces of comb containing honey (and thin honey at that), and dead bees, are sometimes wrapped with a *single thickness* of paper and sent to us by parcel post for examination to see whether the comb contains foul brood. We have mentioned this matter in these columns repeatedly, but we presume these instances of what might almost be called criminal carelessness are caused by ignorance on the part of beekeepers who do not read Gleanings nor any other bee-journal. Nevertheless, we wish to repeat again that *we do not make examinations of suspected samples of brood.* All such should be securely packed in a wooden or tin box and sent to Dr. E. F. Phillips, in Charge of Bee Culture Investigations, Department of Agricuulture, Washington, D. C. Dr. Phillips will even send government franks on request, which will save the cost of the postage.

It is because of this same danger that we cannot accept parcel-post, express, nor freight shipments of old combs to be rendered into wax. As mentioned above, if our home apiary were not located so close it would be a different matter; but under existing circumstances the whole proposition is a dangerous one.

About a month ago we received a package of old combs by parcel post from a point so far distant that the postage on the package amounted to more than the wax was worth.

Honey-crop Conditions and Prices—Clover Prospects Good

Up to this writing, June 10, it has been rather cool in the clover districts; but there never was a time when clover looked better in most of the clover regions in the northern and central states, as there have been nice rains in most of the territory.

Clover is promising in Iowa, Minnesota, Wisconsin, Ohio, Michigan, and parts of Illinois and Indiana. Winter losses and a lack of rain, frosts and freezing, will cause a light crop in New York and Pennsylvania. From New England, reports are somewhat scarce; but from what we have received no large yield is promised. There are almost no reports from the eastern sections of the country. This would rather indicate that the beekeepers are in a state of don't know, and, therefore, are saying nothing.

Mr. J. J. Wilder, of Georgia, who is largely engaged in the business, says the reports from the South are somewhat discouraging. In the northern Blue Ridge region he says the situation is better; but further down in the Red Hills an average crop has been secured.

In northern Florida tupelo is a failure, and the yield from palmetto and other sources in the state was not large.

In Texas the prospects were good earlier in the season; but continued unfavorable weather and a severe drouth have cut down the yield, in *southern* Texas at least. A letter just received as we go to press says the crop will be thirty days late. This is generally true of the North and East also. In the famous Uvalde region there will be an almost entire failure.

In Colorado there will probably be a fair crop of honey. The shortage of snow in the mountains was made up later by falls of snow and later by rains. Prospects are also good in other alfalfa and sweet-clover producing states.

In California the situation is somewhat uncertain, and the yield from mountain sage, orange, and alfalfa is reported light, although there will probably be some fa-

vored sections. In Oregon there has been too much rain.

In Canada there were considerable winter losses, and the prospects earlier in the season were not at all flattering. It is our opinion, however, that there should be at least a light crop of clover in southern Ontario. We base this prediction on the weather maps.

If the weather warms up in the clover districts, there will be a big yield of white-clover honey in many places. It would seem that this cool weather cannot continue indefinitely. In our section of the country we never saw more white clover in *spots* than we have seen this year. The basswoods are all looking well, with plenty of buds. Indeed, we never saw our basswood grove have more buds in June than now. A well-known Michigan correspondent says there is a large basswood crop in prospect there, with clover also promising well.

Taking everything into consideration it would seem that the north-central parts of the United States, including the alfalfa districts, will yield the larger part of the honey this year. At this writing (the 12th) it looks as if there would be a good crop of honey, both comb and extracted, from white clover, alsike, and a normal yield from alfalfa in the West.

Last year there was a large crop of southern honey, and almost no market for it on account of the war. The shortness of the southern crop this year should improve the market; and as there is always a good demand for the best table honey from clover and alfalfa, prices ought to be firm, even if the yield should be large.

J. E. Hand on the Long Idea Hive and the Swarming Problem. Exploiting New Hives before they have been thoroughly Tested

In this issue Mr. Hand replies to our article on page 143 of the current volume on the subject of the Long Idea hive as used by O. O. Poppleton, of Florida. Our correspondent denies that he is a user or a supporter of the Long Idea principle as used by the Florida man. In this we stand corrected. While he does not deny that the convertible principle that he recommended on page 906 of last year is old, he goes on to show that it is good nevertheless, which fact we are quite ready to concede.

Mr. Hand is one of the oldest beekeepers in the country. He has studied this and other problems connected with the industry very carefully, especially the one of swarming and of wintering. There are many things in his article that are true, and perhaps several others on which the veterans will take issue.

Mr. Hand's argument would be stronger if he had not made some radical changes in h ves during the last six or eight years. He first cut loose from the regular standard Langstroth hive and adopted the shallow divisible-brood-chamber principle similar to that advocated by Mr. James Heddon in 1885. This he continued to use with slight modification until five or six years ago. Then he went back to the regular Langstroth hive and frame, using the same, or, rather, a pair of them, on a double bottom-board with a mechanism to force the bees from one hive to the other to control swarming. After using the Langstroth ten-frame hive for two or three years he abandoned it for the 16-frame hive; and now he has abandoned the 16-frame hive and uses only the 14-frame hive. One who has followed all these changes will wonder if he will not yet come down to the 12-frame hive, and finally back to the 10-frame Langstroth.

Mr. Hand's argument would be stronger if he had used his big hive for more than one or two years. If one year's use of the 16-frame has convinced him that it is too large it is not impossible that next year he will decide that the 14-frame is too big. While these changes would seem to weaken his argument, we must confess that there is a thread of consistency throughout all of these various changes. First, last, and all the time he has been trying to control swarming, and has succeeded to a greater or less extent. As we understand it, he is still an advocate of his switch lever bottom, which he will use in connection with his 14-frame hive. We hope, therefore, the reader will go over his argument very carefully, because Mr. Hand shows that he understands the swarming problem; and however we may or may not like his present departure in hive construction, we must not forget that he is still clinging to much the same principles in swarm control that he has been working on for years.

In regard to the wintering problem, Mr. Hand says that winter packing is practically worthless seven months in the year, and worse than useless at other times, because the sun cannot penetrate the double packed walls. On this proposition we can not quite agree. In our queen-rearing operations we can get earlier and more continuous breeding all through the summer in double-walled packed hives than in single-walled. Often there are times when we

have cool nights and chilly days right in the midst of summer; and in our cell-building operations, at least, we find it better to use the double-walled hive throughout the year. This is not a theory with us, but a demonstrated fact. Even in a comb-honey super we find that bees will do better comb-building in a protected super, taking our weather conditions as we find them, than when there is only a single thickness of wood between the bees and the weather.

Resistant Strains of Italians, and How they Make for the Reduction of European Foul Brood; Some Difficult Points Cleared up

THE Provincial Apiarist, Mr. Morley Pettitt, Guelph, Ontario, Canada, in charge of the Apicultural School and experimental work at that point, has sent out a bulletin detailing "some results of co-operative experiments on races of bees to determine their power to resist European foul brood." It seems that he sent queens from some of the best breeders of resistant strains of Italians to beekeepers throughout Ontario. He instructed each recipient "to introduce the queen to a good average colony that is affected with European foul brood. Sometimes there are colonies that seem to be immune to European foul brood for a while. Do not use these for experiment. If you have treated your bees by the shaking method, introduce the queen to a good colony that was diseased before treating."

The replies after the lapse of a year or two are exceedingly interesting and valuable. Naturally enough in one respect at least they show just what we should expect to find—that a vigorous leather-colored strain of Italians are much more resistant to the disease than the common black bees —better than Carniolans, and in most cases better than the extra yellow bees bred for color, although there is one exception where the goldens seem to be more resistant than the darker strains.

The replies in some instances are not clear on one point; and that is, whether merely introducing a queen without shaking or dequeening accomplishes a cure or not. But it would appear in most cases that the colonies were either shaken or dequeened prior to the introduction to the resistant strain of Italians. In a few cases it was very clearly shown that where blacks or hybrids continued to be used, that European foul brood came back after shaking, and continued to do so, and that the introduction of Italian blood after the last shaking finally affected a permanent cure.

It is shown also that all Italians are not proof against the disease; that a strain that is resistant in one apiary where European foul brood holds sway is not necessarily resistant in another. But this is explained by the fact that European foul brood, after it has been in an apiary or a colony for a few years loses its virulence. At the end of that time it yields more readily to treatment. It follows, then, that if an apiary has recently contracted European foul brood it will give its owner more trouble in the handling of the disease, and that when it does break out in a yard for the first time the owner should rely on all known means to hold it in check. First of all, it is of prime importance to introduce a strong vigorous strain of Italians—preferably those of the leather-colored type. The inspectors of New York have for years made this emphatic, and they ought to know. Dequeening for a certain number of days prior to the introduction of a vigorous strain may be sufficient; but it may be advisable to shake as well as requeen; and it may be necessary to shake again until the disease begins to lose some of its virulence.

Mr. Pettit is to be commended for his enterprise in starting an inquiry that involves so large a territory, and for bringing together a mass of testimony that is so convincing on a problem on which there has been such a difference of opinion. If it is a fact that European foul brood, after four or five years, loses its virulence (and that fact seems to be now pretty well established), then it explains *why* a mild treatment in one case effects a cure while in another it seems to be entirely ineffective, and *why* there has been such a conflict in testimony. Every beekeeper, whether he has European foul brood or not, would do well to secure a copy of the above-mentioned bulletin. We presume that all Americans, at least, will have to pay, say, ten cents. Certainly every beekeeper in Canada should get a copy at once; for even if he has no European foul brood it will save him hundreds of dollars against the time when it may come among his bees. In the mean time, as a preventive means, if he has not already done so, he should get rid of his blacks and hybrids at once, and introduce in their stead a vigorous strain of Italians. European foul brood, unlike the American type, is disposed to break out again after treatment. Prevention is better than cure. While good Italian blood will not keep it out necessarily, it will help, and, what is of considerable importance, make the problem of cure much more simple if it does break out.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



MAY 24 was wet, and bees were thick on the grass in the asparagus bed—no bees on grass elsewhere. A barrel of salt had been spread on the bed. Strong proof that bees do like salt.

G. M. DOOLITTLE'S discussion of winter confinement, p. 441, says nothing about difference between cellar and outdoors. With best conditions in cellar I should expect bees to stand a good bit longer confinement than outdoors.

WESLEY FOSTER says, p. 436, that opening a hive seems to aggravate drifting. Exactly. So when we set a hive on its stand we not only do not open it, but we close its big entrance down to a square inch or less. During the years since we began that we have never had a drift.

SPEAKING of making a swarm stay in a hive, p. 464, it is said, "With frames and starters of foundation they will not come out . . . and they will not come out if there is a big noise about." I wonder, now, whether either of those things have the least effect in holding a swarm.

SPEAKING of our "national crime-breeding partnership," A. I. Root says, p. 468, "We men who cast our votes are to blame—every one of us." Speak for yourself, Bro. Root. I plead not guilty. If all "we men" had voted with me in the last 40 years there wouldn't be a saloon in the land.

FIRST bloom on white and also alsike clover found May 27. But day after day it's cold and wet, seldom above 50, and bees stay close in their hives. But clover is plentiful, and if it will only honey there may be a good crop. [White clover began to come out in this locality during the last days of May; and to-day, June 4, the bees are just beginning to work on it. While clover does not seem to be abundant, yet what there is of it seems to be yielding a little earlier than usual.—ED.]

T. J. QUAIL, p. 453, thinks I must be mistaken about bumblebees working on alfalfa. Possibly; but they looked the same as when working on red clover. I know it's the rule that alfalfa doesn't honey east of the Mississippi; but at other times I've seen enough honeybees on it to warrant the belief they were getting something. Moreover, there have been (I think in GLEANINGS) reports of bees working profitably, I think, on alfalfa in New York and Wisconsin. [As a rule alfalfa does not yield nectar in the East; but we have had reports of its yielding in New York and Wisconsin as you say. Mr. S. D. House explains it by saying that alfalfa has to be in a locality for a considerable length of time before it yields honey.—ED.]

E. G. CARR, p. 466, I should say that a colony with European foul brood to be "strong" enough for treatment should have bees covering five or six frames of brood, and there should be a large proportion of young bees. Your question's a fair one. Here's another just as fair. Just how many bees do we mean in general when we speak of a strong colony? I don't know; but I'll start the ball by saying not less than 50,000. [We estimate from 4500 to 5200 bees to the pound. Let us call it 5000 for the sake of an even figure, for it will be about 5000 when the bees are not filled with honey. Then 50,000 bees will mean 10 lbs. One of the biggest swarms we ever hived contained 9 lbs. of bees when placed on the scales. Your 50,000 mark, then, is not far from right, as a few bees would be left at home. For the production of extracted honey we are not sure but we should like to have the colony even stronger than that. Something however, would depend on the size and shape of the hive. An ordinary comb-honey colony probably would not have much over 35,000 bees. A ten-frame brood-nest could contain about 4 lbs. of bees. The supers might contain 3 lbs. more, or in all 35,000 bees on the basis of 5000 to the pound.—ED.]

W. S. M'NAIR, I'm a good bit in sympathy with you about the classes of queens, p. 414. It's a perplexing question, and perhaps we ought to have a commission sit upon it. Take "select untested." If that means anything it means that he who buys simply "untested" gets something inferior. As you say, you can't tell a queen by her looks, unless there be something wrong about her, in which case all the selecting that should be done should be to select out the bad and smash their heads, and that before they're mated. Then as to testing, we're learning to put less reliance on color. Isn't the real test the performance of a queen rather than her color? And you can't know the performance of a queen till she has lived through a full season. But perhaps I'd better leave the rest for the commission to settle. [One who buys "untested queens"

Continued on page 483.

J. E. Crane

SIFTINGS

Middlebury, Vt.



We find our weak colonies wintered better in cellar than out of doors.

* * *

Bees appear to have wintered fairly well in western Vermont; clover the same.

* * *

Our bees have shown the greatest loss in wintering where they gathered the least during August, with one exception, and that was where a large number were molested by thieves.

* * *

Adam Leister's prophecies, page 326 and 327, are certainly very comforting, and we hope they will be fully realized. Last year it was very wet through April, with drouth later. Clover is very abundant hereabouts.

* * *

I quite agree with J. L. Byer as to the value of those ten-pound pail feeders, page 194. I have used them for years, and know of nothing cheaper or better. If they were made of better tin they would last longer, however.

* * *

We have found steam from a kettle for use with a steam uncapping-knife most excellent for softening and toughening the corners of one-piece sections when putting them together. They go together very much better than when water is used.

* * *

Louis H. Scholl tells us, page 222, March 15, how to keep down the swarming fever, and then as a clincher says, "After all, the secret is to begin to prevent swarming before the desire to swarm has ever awakened in the colonies. Remember that." Good advice, surely.

* * *

I can well believe what John W. Love tells us on page 324, April 15, about the yield of honey from banana blossoms. I have taken several drops from a single flower. I should think it would be a bee paradise in Central America, where so many are grown.

* * *

We have found that an excellent way to strengthen very weak colonies is to shake a lot of young bees from a strong colony, selecting a comb where they are hatching fast. Any old bees on the comb will return to the hive from which they were taken, while the baby bees will remain to cheer and strengthen the weak colony.

One of our yards of 98 colonies where they get enough honey during August to keep up brood-rearing and supply them for winter, wintered without the loss of a single colony, proving what has seemed for a long time true, that our success in wintering depends a good deal on the previous season!

* * *

The Quinby number for April 1 seemed to me a great success. I feel as though I had never fully appreciated this great man. In reading of Quinby and Langstroth the thought comes home to me anew with renewed force, how few are those who do the hard thinking for the world! It is much easier to do what some one tells us than to think for ourselves.

* * *

We fed last fall some 15,000 lbs. of sugar syrup without the addition of a drop of anything to prevent granulation. It was made two parts sugar to one of water by weight. A good deal was fed after Oct. 15, and much of it to weak colonies. I presume 4000 lbs. or more remained in the combs unsealed; yet I find very little granulated this spring—less by far than when wintered on their own stores.

* * *

I am glad to learn from GLEANINGS for March 15 that the A. I. Root Co. is going to use Mr. Poppleton's old yard at Pompano for rearing bees and queens. I see no reason why bees should not breed there freely the year round. I spent nearly a month in the yard in March and early April, and had swarms almost every day. Pollen was very abundant, and the bees bred rapidly, although little honey was coming in at that season.

* * *

Mr. T. Rayment on page 151, Feb. 15, tells us of his feeding experiments. I notice that those colonies fed on candy of sugar and honey required but little more than half as much as hives fed on honey alone, while those fed on sugar and egg ate less than half as much and had more brood. One lot he fed on pure sugar wintered well, but required a little more than when fed on pure sugar candy with honey mixed with it. Some years ago I had some colonies short of stores the latter part of winter or early spring, and bought a quantity of domino sugar and laid it on the frames and found the bees ate it without difficulty. The fact that Mr. Rayment's bees consumed the least food, and did the best when it contained

some egg with it, would go to show that some nitrogenous food is desirable in their winter food. We are looking for more light.

* * *

It seemed good to me to see Mr. O. O. Poppleton in GLEANINGS for Feb. 15, as I was with him for some time three years ago. What is said in praise of his hive is not overdrawn. I had the care of his yard at Pompano for some time, and I believe that, if I were going into keeping bees in the South, and extracting honey, I should adopt that style of hive in preference to any other. One of the beauties of the hive is that one can always get at the brood-nest without lifting off a heavy super right in the honey harvest.

* * *

It may be well for us who are engaged in the production of human food to remember that we are doing a strictly partnership business. We may plow, sow, and reap; we may care for our flocks and herds, our birds or bees, and we do well, for if we did not we should all starve. We should just as surely starve if our Partner did not do his part by giving the rain and warm sunshine, the fertility of the soil, and, above all, endow the plants and animals, the birds and bees, with that mysterious something we call life. It is just grand to feel that we have such a Partner to work with us, and make our efforts a success.

* * *

Mr. Henry Stewart's idea of "pumping" up potash from the subsoil by use of sweet clover is a good one, page 319, April 15. I have become very much interested in this plant, and firmly believe it is to play a very important part in the beekeeping industry of this country. Some thirty acres will be sown in this vicinity this season—not much of it, I fear, within range of my bees, however; but I am pleased to see farmers waking up to appreciate its value. I believe it has qualities that will commend it more and more to practical farmers. The valley of Lake Champlain, lying to the east of the Adirondack Mountains, is very much subject to drouth, and the strong long roots of sweet clover will help to produce good crops of forage when other shallow-rooted crops would prove a failure.

* * *

There has been a good deal of discussion during the last year or two as to the best winter nest for bees. This is well enough; but I have been more interested in the best spring nest for bees, especially the weaker colonies. It doesn't matter so much about strong colonies, as they can get along without much difficulty; but the weaker ones—can we help them improve their nests? I notice the bees themselves hold different views on the subject. Some will start in one corner of the hive, another at one side, while another will begin in the middle of the brood-chamber, while still others will start their brood, little patches of it, at one end of the chamber in several combs. Now, how can we help them to push their brood forward most rapidly—by changing their nest? or are they the best judges of conditions or the best prophets of future results?

* * *

On page 199, March 1, Mr. E. S. Miles tells us that after keeping bees for some years he stumbled on to the greatest fact in beekeeping. He says, "This great fact is, the variation in bees. * * It took several years to convince myself that my imagination was not playing me a trick." Do we beekeepers make enough of this great fact? It is this fact that has made the keeping of fowls so profitable; that has enabled the American Merino sheep to produce nearly or quite three times the weight of wool its ancestors did seventy-five years ago; the Morgan horse to trot a mile in two minutes (or is it two minutes and half a second)? It is this fact that makes the sugar beet so profitable at the present time, and potatoes yield such superior crops of tubers; our fruit and seed catalogs so fascinating, and one colony of bees do so much better than others with the same care.

I was talking with a man a few days ago who has a cow that gave him some six hundred pounds of butter fat in one year. Now, the most interesting and important thing is that these variations are transmissible from one generation to another, and we can, if we will, greatly improve our bees and increase the pleasure and profit of keeping them.

Stray Straws

Continued from page 481.

is supposed to get a standard quality. In like manner he who buys "select untested" secures something a little above the standard so far as appearance is concerned. No one can absolutely determine in advance by her looks what a young laying queen will do. But appearance gives an indication. A full-bodied queen—that is, one well developed in size—will probably do better work in egg-laying than one whose abdomen is a little smaller. But this is not necessarily true, for there are exceptions.—ED.]

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



"A young queen is half the battle, both in fighting disease and in securing surplus," says P. C. Chadwick, p. 96. Is this not only true in a sense? I have seen many young queens that were not as good as older ones. Perhaps it would be better to say "young *good* queens," and better hit the mark. Nothing goes further toward good results in beekeeping than good queens.

* * *

Many times have I called attention to the mistake of extracting too close after the honey harvest, and leaving the bees short of stores during the winter months and the breeding season in the following spring. It is too risky, and many beekeepers have lost bees as a consequence. It is a too common practice that should be abandoned. The few dollars' worth of honey that may be "robbed" then would be worth more to the bees and their owner in larger returns later.

* * *

The divisible-brood-chamber hive has proven most excellent in swarm control this spring, just at a time when it seemed that every colony would cast not only one but more swarms. In the apiaries we were enabled to manipulate properly by interchanging the halves of the brood-chambers at the right time. We "knocked swarming in the head" in fine shape. Due to the preceding heavy rains, floods, and bad roads, we were not able to visit all the apiaries; and the result was that we had swarming galore at those not manipulated at the proper time. Breaking up the brood-cluster and relieving the congested condition is the secret of swarm prevention. But this must be done before the bees actually have the swarming fever already on.

* * *

The question has been asked me as to what to do with a colony that already has the swarming fever developed to such an extent, and queen-cells already built, that the mere manipulation of the hives and interchanging of combs and breaking up the brood-nest will not abate swarming. Colonies in such an advanced condition very often swarm in spite of the fact that their brood-nest and the entire hive has been torn up by manipulations seeking to alleviate the swarming fever. The best procedure, therefore, is to help them along in the matter by shaking them into a new hive on the old stand after the old hive has been moved to one side. Only enough bees are carried with the old stock to a new location in the apiary as are necessary to care properly for the brood. Care is taken to set one comb, with one or two fine queen-cells and adhering bees, into the hive to be moved away, without shaking at all, so as not to injure the inmates in the cells. Better still, give a laying queen to the old colony and thus prevent delay in the progress of the colony.

* * *

In answer to another question by one of our readers, I wish to say that one can double the number of his colonies and have two strong ones in place of one in those localities where the honey-dew comes later in the season. Very often the early mesquite and horsemint flows fail to come in our section. If we have done our duty we have had our colonies built up to good strong ones that would have been ready for any early flow. It is often impossible to tell whether mesquite will or will not yield, so it is well to make the preparations just the same. In the event the early flows fail to come, our attention may be immediately turned toward making a good amount of increase without interference with the later flows. Increase properly made at this time will result in the new colonies being as strong as the old ones. Often the new colonies, owing to the fact that these are headed by prolific young queens, outstrip the others in surplus production. We have frequently doubled the number of colonies in some of our apiaries, and harvested twice the amount of surplus over yards that were in practically the same kind of location where we made no increase.

* * *

It may be well here to give my method of procedure in making increase in the spring when we have early honey-flows. The reader will bear in mind that we leave a super of shallow extracting-combs, more or less filled with honey, on the hives in the fall for winter stores and additional breeding room in the spring. Shortly before the early honey-flows come we slip on our comb-honey supers with full sheets of thin-super foundation, after raising the extracting-super up. This method is an excellent one to get bees started in the comb-honey supers rapidly.

More or less brood is contained in the extracting-supers at this time; and after the bees are well going on the foundation they can be removed, with the bees in them, to

Continued on page 485.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



If I were taking students to train in bee culture I would first have them read Langstroth's original work. It is a splendid foundation for the thoughts of a beginner.

* * *

Dr. Miller, in commenting on my remarks regarding chilled bees, makes a good suggestion. But the fact that we lose many bees that are not frozen but chilled and lost in the field remains unexplained.

* * *

The picture of granulated aster honey in the comb, page 329, April 1, bears very much resemblance to the product from bluecurl in California. This honey often granulates solid, even where sealed.

* * *

Louis H. Scholl recommends small stones to indicate the condition of colonies. I have used this method for years as a kind of from-day-to-day record, but am now keeping a book record for permanent information.

* * *

At this writing, May 30, the weather has reached a normal point, with the button sage nearly out of bloom in this locality, the white variety just coming in, and wild alfalfa at its best. We are getting a slow flow, the amount of which will remain uncertain for the time being.

* * *

Prospects are for a short crop in the orange and sage belts. When the button sage has its off years it matters not whether it rains by the foot or the inch. It will have its rest any way. That much has been plainly proven this season. From now on it will remain a fixed fact to me.

* * *

With an empty super, a bee-escape board, and a large wire-escape cone fit to the board instead of the little Porter bee-escapes, one can get the bees out of a super in about half the time that is required with the Porter escapes, and run very little risk of bees and honey getting too hot.

* * *

Chilled brood in colonies having swarmed during the past cold weather was not uncommon. The loss of bees from all colonies was greater than I had thought could be possible. I had colonies hived on full sheets of foundation six weeks ago (now May 28) that drew their foundation the first week or ten days after being hived, that now have many less bees than at that time.

* * *

Dr. Miller says, page 393, May 15, that if he had my locality or bees (he wonders which it is) he would suffer no two-year-old queens except a few extra good ones. It is not the bees. I have tried stock from all over the United States, and the result is the same. I requeened most colonies last season and will make a clean sweep this year of all queens one and two years old. I cannot afford to have even ten per cent of my colonies with poor queens in the busy part of the season.

* * *

An orange-grower a few days ago said to me he was afraid the set of fruit would be small, owing to the fact that bees could not reach the bloom during the greater part of the blooming period. A few growers realize the importance of the honeybee in fruit-growing; but the majority let others do their thinking to about the extent that is done in other lines of business. In this connection I give the following clipping from the Kansas City *Star* of May 19:

SAYS "KEEP A BEE."

A. D. Wolfe, secretary of the Missouri Apicultural Society, talked at the meeting Saturday and recommended the keeping of bees in every orchard, home or commercial. Mr. Wolfe did not talk from theory, but made his speech largely a series of citations from the experiences of fruit-growers and beekeepers. Three essentials were necessary to grow fruit, he said—weather, spraying, and bees.

If a stand or two of bees is kept in each orchard the fruit will be larger, better-flavored, better-colored, more abundant, and of better keeping quality, he said. Apples and cucumbers particularly are benefited by bees, while strawberries near the hives frequently produce fair crops that would have been failures without bees. For example, he cited a fifteen-acre strawberry-field that lost practically all its first blossoms by frost. The second blossoms that came on, naturally, were weak and would have set little and poor fruit had not the bees pollinated them in seeking honey.

Beekeeping in the Southwest

Continued from page 484.

a new location for increase. Set on a bottom-board, each given a caged queen, covered up, and the entrances closed with green weeds or grass, they will take care of themselves. After the queens have begun laying these nuclei may be strengthened by simply setting another of these supers on each one. This second lot of supers will come from colonies that had not yet begun work in the comb-honey supers sufficiently when the increase was made.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



BEGINNING IN BEEKEEPING.

"I am about to start in beekeeping. How many colonies should I start with, and about what should be the outlay? At what season of the year would it be best to begin?"

The spring is the best time to begin beekeeping, and May or the first part of June the preferable time. Then the bees should be in a condition in all northern localities, so that "spring dwindling" will be past. If a good colony is selected on the first of June, it will be ready, usually, to take advantage of any honey harvest which will come after that. If you have on hand a surplus hive and super for each colony purchased, you will be in good condition for a successful outcome from your first venture with bees.

As to the number to start with: If you have never kept bees, nor had any schooling with some good apiarist, my advice would be to purchase not more than from two to five colonies; otherwise your increase at the start may become out of proportion to your gain in knowledge, and thus you may make a failure and become discouraged through your knowledge not keeping up with the number of colonies. One of our best beekeepers, who has accumulated quite a fortune from his sales of honey, once told me that he began with only two colonies, and that he considered that number as the best, and so advised all who appealed to him regarding the matter. This was the number of colonies I started with in 1869, so I quite agree with him in this matter. He told me that his start with bees cost him $25. I paid out $35 for my start; and after that I never paid out a dollar later until I had sold enough from the bees themselves to purchase those dollars.

But perhaps I should tell regarding an addition to this start which cost me nothing save my labor. Passing through a piece of woods one day in March, 1870, I saw dead bees on the snow under a tree; and on looking up I saw bees going in and out of a hole. I obtained permission to cut this tree, and in May I secured a fairly good colony, transferring the combs and bees to a hive I had made in April for them. In 1871 I set aside as many full combs of honey as I could obtain without robbing the bees I had. Then in the fall, wherever I could hear that any one was going to take up his bees, as they used to in those days by killing them in order to get the honey, I would offer to take the bees alive and give them the honey. Of course the farmer was out what honey the bees gorged themselves with in the drumming-out process; but as most farmers are tender-hearted they liked the idea of not having to kill the bees. I got several good colonies in that way.

I remember that one farmer had two small colonies or second swarms he was going to kill with burning brimstone, and he was glad to let me have them. He offered me all the empty comb there was in addition to the bees. I put the bees from the two hives together. As all after-swarms have young and vigorous queens which are liable to breed a little later than an old queen, this colony was composed of bees of the right age for wintering to the best advantage, while the queen would be at her best the following season. The result was that this colony gave me two good swarms the next year, and I sold honey from them to the amount of $18.76. When I jingled that money in my pocket I considered I had cleared that much, and added three colonies of bees to the apiary, besides saving the bees from brimstone torture and death.

"Do you think it profitable to save the bee-journals as they come, and pack them away? My wife does this with her magazines; but the papers I take generally go into the waste-basket."

If you do not follow your wife's example with your magazines you will show poor qualifications for a successful outcome with the bees. And, remember, you're not to allow those bee publications to lie packed away till you don't know the year dated on the first volume you have. I have nearly every issue of every bee-journal published in the United States, and most of them bound, and at my fingers' end whenever I wish to refer to them. I prize them very highly. I have had a chance several times to part with them, but have always refused. These papers have been very largely the means of making me what I am as a beekeeper to-day. They have walked with and talked to me all along down through the weeks, months, and years for a generation, giving me good advice and wholesome doctrine regarding our beloved pursuit. In fact, I have grown up with them and they with me, and to part with them would be like parting with one of the family. I am continually getting new thoughts out of them as I handle them over.

GENERAL CORRESPONDENCE

ON THE BRINK OF OWEN'S VALLEY

BY GEORGE M. HUNTINGTON.

The first illustration of my beeyard, taken Sept. 1, 1913, shows the hives before the supers were removed. The hive at the right, without any super, is empty. The season of 1913 was started with five colonies and four nuclei, and ended with ten full colonies and a crop of 17 cases of comb honey of 24 sections each.

The bees were flying about nearly every day up to Jan. 1, 1914, which was very pleasant. They had a playspell during the warm part of the day; but winter commenced that night and lasted till Feb. 1. A few days later I gave them graham flour and bran to work on as a pollen substitute. The bees had commenced to look over the alfalfa-blossoms in the haystack, hunting for pollen. I put the graham and bran in an empty hive with some pieces of glass, partly covering the top of the hive. In another hive I put a pan of water with excelsior in it with pieces of glass partly covering the top so as to give some circulation of air. The hives would become too warm if fully covered. The bees also used the top for exit. Nearly all entered at the regular hive-entrances.

Brood-rearing commenced at once. Early in April I had to take frames of brood from the strongest colonies and give some full sheets in order to hold back swarming or to check the queen's activities. Hive No. 8 had used nearly all their stores in brood-rearing. Three frames of brood were removed, and one empty comb, one comb of honey, and one frame of foundation given to replace the frames of brood. Then a super with twelve cull sections of honey was placed on the hive. On May 5 two more frames of brood were taken away, and two frames of full sheets given.

The super with the twelve sections was removed on May 12, nicely filled with fruit-bloom honey. Another super was placed on the hive with four bait sections. My record shows that this full super was taken June 1 with wild-buckwheat honey and some sections from mixed sources. This stand of bees, No. 8, can be identified in the four pictures of Nov. 1st as the one with twelve supers, showing how it would appear with the season's crop all on, 335 filled sections and one bait section with comb fully drawn but no honey in it. Out of the 335 sections



G. M. Huntington's apiary, looking across Owen's Valley toward the White Mountains.



Twelve supers containing 335 filled sections, the season's harvest from one hive.

there were thirteen that would grade as culls an account of not being fully capped over. All of the rest were No. 1 sections Some were a pound, and nearly all above 13 oz. net.

In one of the pictures I am standing next to No. 8 for a comparison of heights, my height being 5 feet 10 inches. Each hive requires a stone on the cover to keep it from making journeys. As you will see, nature has provided lavishly of these necessary articles, and there are spare stones for more hives, but no places to locate any more hives.

The next hive with comb-honey supers to the left is my first swarm of the season, cast May 5. It produced 196 sections. The next to the left of it, in front of the honey-house, produced 103 sections and 101 lbs. in brood-frames filled with full sheets. The second swarm was cast May 6. In the distance are the Sierra Nevada Mountains. My other increase (three colonies), produced 72 sections, 71 sections, and 73 lbs. in ten new brood-frames. The 1914 season's production from the ten stands as shown in the Sept. 1st, '13, picture was five colonies increase, or 50 per cent, and 81½ 24-section cases of comb honey and 30 new brood-combs filled with honey. These brood-combs are for spare stores to replace some old combs which I may wish to cull out in the spring if any stretched cells or drone-cells are found. Every inch of my brood-combs must be working, and contain worker-cells.

The view across Owen's Valley shows in the foreground the trees where swarms cluster to be hived. I climb down instead of up, as is the usual manner of getting to the clusters—down on my knees. Seen in the distance are the White Mountains, elevation over 12,000 ft. In another view (cover picture) the Sierra Nevadas rise in the distance with snow-covered peaks over 14,000 ft. in elevation.

The nearest alfalfa in this location is 1¾ miles away, and not more than 200 acres within a two-mile circle, all on the side toward the White Mountains. The Owen's River Valley is here about 14 miles wide. In some of these pictures two hives are shown that were moved in at the close of the season from a neighboring apiary.

I am inclined to credit my season's success to a correspondence course in beekeeping which I finished about two years ago.

The diploma I received, and the crop produced, have promoted me from the A B C class to a fairly good start in the Division of Agricultural Education Correspondence Course No. 15 of the University of California. This calls for some brushing up of the botany on which I had never done any reading. But I hope to live through it, even if do have to make sketches of bees' tongues.

Bishop, Cal.

EFFICIENCY OF THE FOURTEEN-FRAME HIVE

BY J. E. HAND

On page 148 the editor accuses me of using the Long Idea hive, and quotes Mr. Poppleton as saying that the convertible principle of wintering bees is very old—a statement which the editor seems pleased to emphasize. He might have added that it is also very efficient, a fact that I am especially pleased to emphasize. It matters little whether the convertible hive is new or old, so long as it is thoroughly competent.

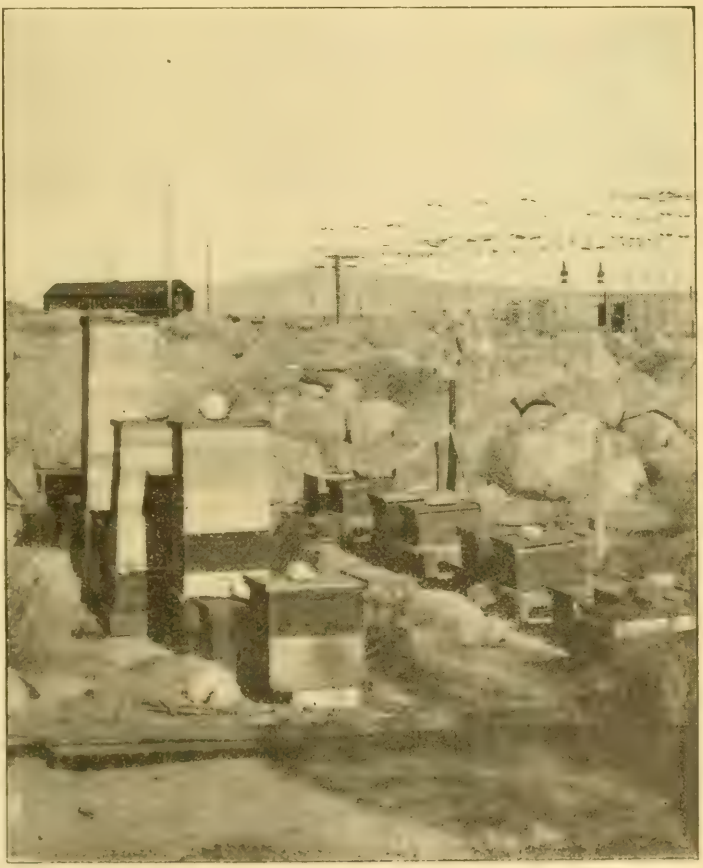
Profits in beekeeping are not governed by the amount of honey produced, but rather by the cost of production. Proper beehive architecture is virtually a matter of decreased cost of honey production by economical methods. The value of a hive is measured by its solution of problems inseparably associated with honey production—namely, the breeding, the swarming, and the wintering problems. A hive that solves these problems is thoroughly competent. Efficiency consists of fitting the hive to the principle, regardless of size, instead of trying to cram a great big principle into a little hive. The idea of recommending a hive simply because one man can handle it easily is like recommending a horse that one man can hold by the traces. The twelve-frame hive is uneconomical for reasons just given. "So near, and yet so far."

THE BREEDING PROBLEM.

Since horizontal expansion of brood-chambers and vertical expansion of supers is generally recognized as the correct principle, a competent breeding hive must be large enough to accommodate prolific queens. It has been ascertained that 14 Langstroth frames are the limit of expansion consistent with queen fertility; hence 14 frames is the limit of practical expansion, and 20 x 24 inches the dimensions of a competent breeding hive.

THE SWARMING PROBLEM.

While large hives do not prevent swarming, they are important factors. Swarming is not a premeditated act, but the fulfillment of a natural impulse in which restricted breeding room or diminished queen fecundity, or both, are the active forces. Unlimited breeding room and undiminished queen fecundity means little swarming. Requeen before the zenith of fertility merges into broodiness, for broodiness begets supersedure cells; and supersedure cells beget swarming, on conditions. Broodiness in queens, as in hens, is a period of temporary exhaustion of fecundity during which the ovaries are speedily developing another batch of eggs. During this period of broodiness which varies in duration with



More stones, and a substation of the Southern Sierra Power Co.

different queens, the mother-instinct predominates, and the queen will lay eggs in queen-cells, and at no other time. Hence cells built with a laying queen present are always supersedure cells resulting in supersedure of swarming according to the condition of the queen, colony, and honey-flow.

When we understand bee nature and the laws that govern the swarming impulse we can prevent it intelligently and economically by the following method: At the beginning of clover bloom make all colonies strong by uniting and equalizing, and take two combs covered with bees, including the queen, from each fourteen-frame hive, substituting empty combs and a ripe queen-cell in a cell-protector. The two combs and queen are placed in a thin-walled wintering-chamber for increase at the close of the basswood harvest.

THE INCREASE PROBLEM.

Ordinary methods of forming increase are objectionable on account of the labor involved in building up nuclei by stimulative feeding and by peddling combs of brood. Hence a more rapid and economical method is imperative when much increase is desired. A competent hive contains all the material for 100 per cent increase in full-sized colonies simply by utilizing extra combs and bees on hand at the close of the harvest. Here is the method: At the close of the basswood harvest, after the honey crop is secured, the hives are literally overflowing with bees and brood, and this is the time to form increase economically. Cage the queens in the nuclei mentioned under swarming, and take six combs containing brood covered with bees from each fourteen-frame hive, placing them in each nucleus hive which now holds 8 combs, and the parent colony will also have 8 combs, and both have laying queens. I regard 8 frames as a practical wintering colony, and give no more except in case of an unusual fall honey-flow. In this way a competent hive solves the increase problem with the utmost economy, securing 100 per cent increase and a full crop of surplus honey while paving the way for an economical solution of the wintering problem.

THE WINTERING PROBLEM.

Ordinary methods of outdoor wintering consist of enclosing hives in winter cases with suitable packing between. Winter cases are idle seven months of the year. The thick inner walls and thin outer walls are poor protection. In a northern winter sunny days are scarce, and chilling winds are the general rule. It is advisable to make the outer case of thick lumber and the inner case of thin material that the heat may penetrate the packing and maintain an even temperature in the inner chamber, which should be contracted to the fewest combs required to hold sufficient stores. The convertible principle makes a competent hive serve as a winter case providing perfect winter protection with no extra equipment except a thin-walled inner chamber 12 inches wide inside and 12 inches deep, made from old packing-boxes. These are used in summer for nuclei, increase, etc., and are not idle capital. Since half the colonies are already in their wintering chambers these are placed on the floor inside a regular fourteen-frame hive lengthwise, and the frames at right angles to their accustomed position, and at right angles with the entrance which is at the end. This creates a space of 2½ inches surrounding the inner chamber except the front end, which is pushed up tight against the hive with a heavy sheet of insulating paper between. The extra depth of the inner chamber (12 inches) provides a space of 2½ inches under the combs, while a full-sized upper story holds 8 inches of packing on top of the inner chamber. The whole is kept snug and dry by a three-inch water-proof cover. The parent colonies are treated in like manner, and all are snug and cozy in their winter nests at a cost of 25 cents for equipment as useful in summer as in winter.

With an outer case ⅞ inch thick, and an inner chamber ½ inch thick protected with heat-retaining packing, the temperature on both sides of the inner walls will be practically the same, especially with extreme contraction of the winter nest, which is the key to successful outdoor wintering. Moisture will not condense, but is conducted out through the entrance after every particle of heat is utilized to maintain a normal winter temperature without extra consumption of food. Heat is generated by the oxidation of food and vital energy expended in muscular exercise. To allow heat to escape from the winter nest by upward ventilation through porous packing, erroneously called an "absorbent," wastes bee energy. Sealed covers on the inner chambers under the packing preserve the heat. This principle is thoroughly scientific, and requires extreme contraction in a well-protected hive with an entrance ⅜ x 10 or 12 inches to conduct away humidity by diffusion with the circulation of air in the deep air-chamber under the combs. I began with a sixteen-frame brood-chamber, but soon discovered that while bees, if crowded for room, will adapt their work to existing hive proportions, they have a decided preference



FIG. 1.—First position in reversing the comb. This commences a continuous sweep of the frame, which never allows the comb to be held flat, unsupported by the frame.

for vertical expansion beyond a certain limit of horizontal expansion. The outside combs of the brood-chamber were entirely neglected. I moved filled combs to the outside, an inconvenient manipulation with a brood-chamber under a heavy super. Hence I reduced the size of brood-chambers to 14 frames which I now regard as the limit of expansion consistent with queen fertility, and the limit of contraction for the solution of problems.

Viewing it in this way the Long Idea principle cannot well be combined with the supering method, and exclusive horizontal expansion is contrary to bee nature; hence excessive frame manipulating is required in moving filled combs to the outside, substituting empties in the center to insure good work and prevent swarming; for bees will swarm from a 24-frame Long Idea hive with one-fourth of the combs empty.

The solution of problems is possible only with correct principles of beehive architecture consisting solely of 8 inches of horizontal expansion added to an ordinary ten-frame hive Eight inches of horizontal expansion, at a trifling cost, changes a practical nonentity to a degree of efficiency hitherto unrecorded in beehive methods.

The method of increase outlined in the foregoing demonstration is for a clover and basswood location. In locations where the main harvest comes in August and September it is advisable to form increase in June by the method given.

Birmingham, Ohio.

HOW NOT TO DO AND HOW TO DO.—III

Beginning in Beekeeping; Handling Combs

BY R. F. HOLTERMANN

Perhaps there is no operation in beekeeping which is conducted in such a diversity of ways as the fundamental manipulation of the hive—viz., the handling of the combs, and there is no work in connection with beekeeping which has to be done more frequently. The most of our labor is done in order to secure fruit from it, and that being the case we do not wish to expend any unnecessary exertion upon it.

When a piece of work is not done very often, we are apt to think the expenditure of the minimum of energy is a matter of no importance; but let me say it is of very great importance. Individual acts put together become habits; habits in time become principles, be they right or wrong; and the result is they become the basis of action in our lives. If my training has been neglected I have to correct that training; and if I cannot do it in my own strength I can draw on an exhaustless store outside of myself.

It may justly be said we are born with

certain tendencies. That is undoubtedly true; but much can be done as to fitness, before the world's eyes, by training in the right direction. One must do work constantly in the right way until it becomes almost an involuntary act with him.

Fig. 1 illustrates my favorite position when examining a hive. The cover is taken for a seat. There is a cover for every hive. It should be convenient, and it should be just the right height. Each hive should have a quilt or honey-board under the cover. I believe that, in the United States, this is quite often not the case. There is one other position which I sometimes assume, but only when I am very tired—"played out;" but, on account of pressure of work, I cannot afford to stop working; that position is to get down on my knees by the side of the hive; but that is not a good position under normal conditions.



FIG. 2.—Raise the end in the left hand, bringing the frame to a vertical position.

With the elbows resting on the knees, as in Fig. 1, the weight of the comb is supported by the knees, and relieves the arms during examination. After the one side of the comb has been examined (note the top-bar on the upper side), to examine the other side I have a regular circling and sweeping movement of the comb to bring to view the other side. In no case is the comb to be held flat as in Fig. 6.

In hot weather a heavy comb will break out when so held, even if it is fairly well wired. If the comb is not wired and not well fastened at the bottom and at the ends, it is almost sure to break out. If the reader will take a comb in his hand, make a circling motion, following 2, 3, 4, and 5, he will get my method of turning a comb. In Fig. 5 he will see the comb with the top-bar at the bottom. When possible the sun should be behind the one manipulating the hive, allowing its rays to strike

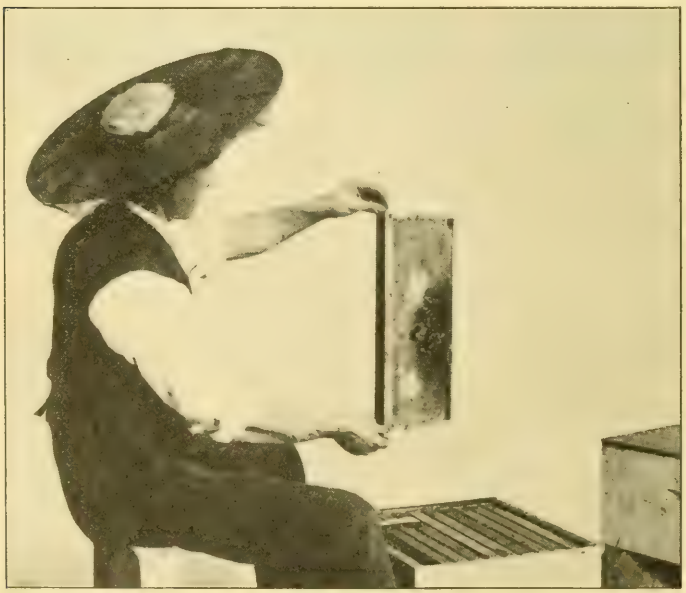


FIG. 3.—Twirl the comb with the top-bar as a pivot, the comb being supported by the end-bar.

into the cell where eggs are looked for. To find the eggs I sometimes have to step out from the shade of a tree and allow the sunlight to shine into the comb-cells. The same advice holds good in looking for the scale on the lower side of the cell. The light should then be allowed to shine on the lower side wall of the cells in the comb.

If the work is always done in that way a beekeeper is not likely to forget the proper way to hold a comb and hold it as in Fig. 6.

Make a system of handling combs and it will become a habit which will not require much study to maintain. But as a rule the people who forget the most, dislike system, although they need it the most. They would prevent much discomfort to people connected with them.



FIG. 4.—As the other side comes into view, lower the left hand. The comb rests on the top-bar.

Brantford, Canada.

NET-WEIGHT LAW A STEP IN ADVANCE; CURRENT COLORADO COMMENTS

BY J. A. GREEN

The law requiring the marking of net weight on sections of honey seems to be causing a great deal of trouble and much apprehension among some beekeepers. While there may be some undesirable features about the law, it is in the main a very good one, and requires practically nothing more than many beekeepers have been doing for years. It will tend to enforce better methods of honey production as well as grading, both of which have been very much needed. The one who has carefully followed the grading rules established by the Colorado Honey-producers' Association will find it easy to go the step further required by the new law. The apiarist must adopt methods that will result in sections as uniform in weight as possible, and then assort them according to weight so that there will be little variation in weight between the sections in any case. It then becomes an easy matter to stamp every section of that case with a minimum weight that will fairly represent what the purchaser receives.

I am glad to see on page 922, Dec. 1, 1914, that R. A. Burnett is now ready to recommend grading by individual weights. When I advocated this in GLEANINGS some years ago Mr. Burnett was inclined to poke fun at me for going to the trouble of "weighing the honey for the retailer," but I felt well repaid for it in the higher price I was getting for my honey. "All things come to him who waits," and it is pleasant to see one after another of the things we old timers worked for in the past come into use now, even if we do not get the credit for it.

Before I leave this subject I wish to say again that it is a great pity that the majority of honey-producers still cling to the 1⅞-width section. Many years of experience in comb-honey production, much of this time using both sizes of section, have convinced me that the narrower section, seven to the foot or thereabout, will give more honey, nicer honey, and more uniform weights than the wider section which was adopted and continued in use merely because it happened to fit the hives and su-

pers then used, with a little less complication than a section that suited the requirements of the bee better.

The net-weight law should give the finish to the old idea that the regular 1⅞ section is a "pound section," and there is really no other reason for continuing it except the inertia of beekeepers, and especially of supply-dealers, and the slight expense of changing the old supers to accommodate a narrower section.

I honestly believe that the use of the 1⅞ section, instead of one better adapted to the nature of the bee, has cost the beekeepers of this country thousands of dollars annually. I wish I could prevail on them to test the matter themselves on a scale large enough and for a time long enough really to know for themselves.



FIG. 5.—The comb is supported by the top-bar at the bottom. It exposes for inspection the side opposite to the one in view in Fig. 4.

THE ARMY-WORM AND CLOVER.

The statement on page 745, October 1, 1914, that the army-worm does not eat the clovers, is certainly wrong in this locality—at least so far as sweet clover is concerned. The army-worm was not very bad here last summer, but it was here in sufficient numbers to give a good idea as to its habits. One thing that impressed itself on me was that it evidently preferred sweet clover to alfalfa, or, in fact, almost anything else. They could be found in considerable numbers on the sweet clover along the irrigation ditches bordering the alfalfa-fields before they attacked the alfalfa at all; and I believe that, in many cases at least, they never entered the alfalfa-fields at all at such points.

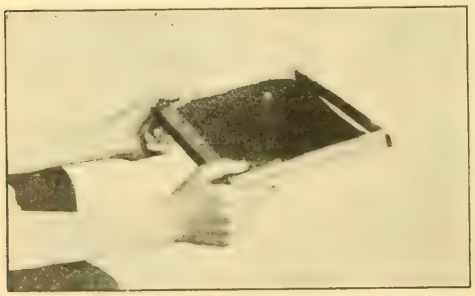


FIG. 6.—In no case is the frame to be held flat, the comb left unsupported, as in this illustration.

YELLOW SWEET CLOVER.

Does any one really know anything as to the value of yellow sweet clover as a honey-plant? I should like to know. I used to think it must be very valuable, but for several years I had three or four acres of yellow sweet clover close by an apiary of about 50 to 75 colonies. They worked on it most vigorously. It sounded like a swarm of bees anywhere between the apiary and the clover-field, and there were few other bees in the vicinity. Yet there was very little show of honey in the hives. Perhaps they used it all in brood-rearing, but it seemed to me that the same acreage of white sweet clover, later in the season, would have shown more surplus in the supers.

FOUNDATION SPLINTS.

If Jacob Alpaugh, after sawing his thin boards as described on page 940, 1914, will dip them into hot beeswax, pressing them closely together until it is cold, he will find it much better than the glue he uses. This is the plan I have always used, and which I described in GLEANINGS several years ago. I dipped the thin boards into the hot wax separately, piled them up, and put them into a press before the wax got cold. As soon as the wax cooled, this block of boards could be sawed up just as though it were a solid piece, yet the splints would separate as soon as they were put into hot wax. Mr. Alpaugh's description of the

way he inserts splints makes one wonder how long it takes him to prepare a hundred or a thousand frames. I do not use splints any more. One of my greatest objections to their use was the time it took, even when they were put in in the ordinary way. I consider that the plan of painting the foundation with hot wax, after it has been put into wired frames, gives better results with less labor.

DOES BOILING ALWAYS STERILIZE?

In addition to what I said on page 975, Dec. 15, 1914, I should like to add a warning against relying too much in high altitudes on boiling to kill foul-brood bacteria.

One thing that must be remembered, when it comes to the question of sterilization by boiling, is that liquids boil at a lower temperature in a high altitude, such as we have in the greater part of Colorado. Water boils, for instance, at 212 degrees at sea level. Here it boils at about 202 degrees, or eight degrees lower. In much of the beekeeping territory of Colorado, water boils at 200 degrees or lower. So the statement that boiling for a short time kills the germs of foul brood at Washington, D. C., might be perfectly true, and yet dangerously deceptive to the beekeeper of the mountain valleys of Colorado. Furthermore, bacterial life exists in two forms, and in the form of spores it will withstand a much higher temperature than in the ordinary form. I have seen the statement lately that bacilli that, in the ordinary form, were killed by a short boiling, had in the form of spores remained alive after being subjected to the temperature of boiling water for sixteen hours.

I have seen a great deal of foul brood, both in my own experience and in the capacity of bee inspector; and as a result of that experience I firmly believe that, for for the average beekeeper, destruction by fire is not only the safest but the cheapest method of cure.

Grand Junction, Colo.

NOTES FROM GERMANY

A Beekeepers' Association of Old Standing

BY J. A. HEBERLE, B. S.

In the year 1850, prominent beekeepers of Germany and Austria formed an organization to promote practical and theoretical knowledge of beekeeping. The organization called itself *Wanderversammlung,* and the meetings which are held annually are known by the same name. In 1885 Hungary joined the association.

The place where the session (which lasts several days) is held is selected at least one year ahead. The countries take a turn about—one year in Germany, the next in Austria or Hungary. Usually several invitations are presented. The selection is decided by vote. The inviting local club arranges for the time of meeting, and for an exposition, and provides for social entertainment and an excursion to some place of interest. The exposition includes bees, honey, wax, and products thereof; hives, tools and appliances, books, bee journals, etc. A considerable amount in premiums is distributed among the exhibitors according to the recommendation of the judges appointed for this purpose.

The most interesting part of these meeting are the numerous lectures by eminent men of science, and practical beekeepers, with the resulting discussions. This part of the program is arranged by the executive of the *Wanderversammlung.* For admittance to the exposition a small fee is charged to outsiders. These receipts and a contribution from the government usually cover all the expenses.

Each country has its own officials which arrange and conduct the meeting when held in their country. The officers—a president, a vice-president, a secretary, and four counselors are elected for a term of six years by a majority of the members present from each country. They may be re-elected. Any respectable beekeeper, by paying a fee of 75 cts. to one dollar becomes a member for that meeting—is admitted free to all the lectures, to the exposition, the entertainments, etc., and has the right to vote.

With few exceptions these meetings have been held every year. In June, 1854, the meeting that was to be held in Koln in August was, owing to the warlike disposition of Europe, postponed to 1855. In July, 1859, on account of war disturbances, the meeting was postponed till 1860. In June, 1866, the president announced that, "owing to the seriousness of the political situation which prevails everywhere, the meeting will not be held this year."

In 1913 the meet was held at Berlin. The exposition wound up with a deficit of



The apiary is exposed to the sweep of the winds.

about 10,000 marks. The expenditure was unusually heavy, and the patronage fell short of expectation. As the invitation of Berlin for 1913 was presented at Konstanz in 1911, some one warned against holding the meeting at so large a city. The numerous attractions of all kinds that are constantly presented to the public make these city folks indifferent to an exposition of bees, its products, etc., and predicted a lack of interest. The same voice, of course, did not fail to say, after the festivities were over, "I told you so." The fact is, all the expositions in connection with these meetings in smaller cities and large towns came out about even, or had a small surplus, while at Berlin, with its millions of people, the exposition was financially a failure. The exposition itself was creditable in every part—that was the unanimous judgment. The expenses may have been heavy, but it would seem that, by properly advertising it, patronage should not have failed. Why should such an exposition not arouse the interest of the city folks? I do not think that this one failure should prevent the *Wanderversammlung* at a future time from accepting an invitation from a large city as some have predicted.

In 1914 the perigrinating beekeepers assembled at Pressburg-Poszony, Hungary. It is a town of 80,000 inhabitants, an hour's ride on the express from Vienna. The reception of the beekeepers from afar, and the exposition, received the praise of all the visiting brotherhood of beekeepers. Hungary has better bee-pasture than Germany, and is noted for its water-white honey from the acacia (locust-tree). The exposition was opened July 26, and was to be closed on the 30th, but on account of the outbreak of war it had to be closed the next day. The visiting beekeepers, many from considerable distances, Germany and Austria, were advised to leave on the morning of the 28th. After that time the trains in Austria were for some time reserved for the war department.

Kempten, Bavaria, Germany.

AIR DRAINAGE IN THE APIARY

BY E. F. ATWATER

For a long time the writer considered natural shelter to be a very desirable point in locating an apiary. For several years we had a yard consisting of 100 to 150 colonies, located where it was sheltered from prevailing winds by an orchard on the west and a railroad embankment, a few feet high, at the north. Previously the same apiary had been located some rods to the south, giving still better shelter, as hog-

houses and haystacks gave considerable protection from the south. The ground was level, with a slight rise to the north.

We seldom lost many colonies outright in this location, in wintering, but usually found it impossible to bring them up to the standard of the other yards with less shelter, at the opening of the flow, even though they were allowed more stores.

A discouraging feature each spring would be finding fully half of the bees of most colonies dead on the bottom-boards and part way up between the combs. This experience and others resulted in our theory of the necessity of sufficient air drainage for the best results in wintering and spring breeding.

Finally we moved this apiary. The only available location near was on a north slope, upon quite steep ground. Here the bees winter and breed up better, though exposed to the full blast of the northwest winter winds. We find that a south slope, not too steep, gives still better results; but we can not get as good results on level ground with natural shelter. The only reason that we can assign is the lack of air drainage.

This view was corroborated at the Idaho convention about a year ago, when Mr. Nelson, of Oregon, gave his experience on the same lines, saying that his best wintering and breeding yard was exposed to the full rigors of the winds.

The illustration will give some idea of the present location of the yard where these results have been so apparent. This apiary is on the north slope of the "Mesa," or bench, while high above it, a little to the south, runs the canal supplying water to the valley lands.

The sage brush in the foreground furnishes fair smoker fuel, though it burns out quickly.

This yard is run for extracted honey, and contains mostly Italian bees of a fine strain.

Meridian, Idaho.

WHAT TO DO WITH WEAK COLONIES IN THE SPRING

BY T. DWIGHT WHITMAN

The question of how best to dispose of weak colonies in the spring is sometimes hard to answer. If they are united, in a short time you have one weak colony and nothing gained. A better way is to put a thin partition in a ten-frame body not over a quarter of an inch thick, so that the body is divided into two bee-tight compartments. Then arrange the bottom-board in the same way (see Fig. 1), making the entrances at the outside corners of the body. Place the frames occupied by the queens on each side of the division-board, any frames with brood in them coming next, and the frames with honey in them next until the body is filled; then your cover cloth and a tight cover over all. Leave them thus until they begin to get a little crowded for room. Put on a queen-excluding board, and on that a full-depth super body or super of sections.

You will be surprised to see how quickly the double hive will build up both before and after the extra body is put on, and how much heat is to be felt if you put your hand on one side of the thin partition when the bees are on the other side of it.

The two colonies do not fight in the upper body above the queen-excluder, but agree peaceably, and this upper body makes an ideal place to put a small queen-nursery (see Fig. 2).

My nursery, which shows in Fig. 1, in front of the bottom-board, is made from a piece of 1½-inch by 2¾-inch lumber with inch holes bored from the top as shown, to meet holes of the same size bored through the piece, the sides being protected with screen wire and the top with a tin slide. The slide is shown partly drawn out in Fig.

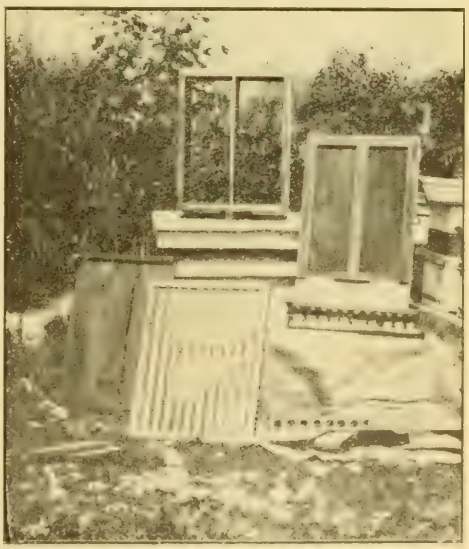


FIG. 1.—Double hive and bottom-board. In front of the latter is the queen-nursery.

1, in nursery at bottom of the queen-excluding board.

The holes bored from the top, stop on reaching the holes bored from the sides, leaving the bottom of the nursery of wood smooth on the bottom. This makes a good place to put artificial cells; or if the bees insist on building comb on the bottom of the nursery, as they sometimes do, it is easily scraped off with a hive-tool.

As the bees above the queen-excluder are practically queenless, they will readily accept a virgin queen if confined for a short time in a Miller cage as shown in Fig. 3. While they would feed and care for the virgin queens in the nursery, I found that it was not practicable to make use of a small door to the different cells in the nursery to allow the virgin queen to come out after she was hatched. The bees would always kill her. But I could form a nucleus of one or more frames of bees from the upper body, and by wetting them give them a virgin queen from the nursery. They would accept her at once.



FIG. 2.—Queen-nursery for use in full-depth super above a queen-excluder on a double hive.



FIG. 3.—Queen in Miller cage ready for introduction.

As the double hive below supplied a strong force of bees to the upper body, they would draw out full frames of foundation very quickly, and this was a great convenience if I was raising a few queens for myself.

The bees will work together peaceably above the queen-excluder all summer, but must be separated before winter by extending the thin division-board to the cover or otherwise, or they will kill one of the queens.

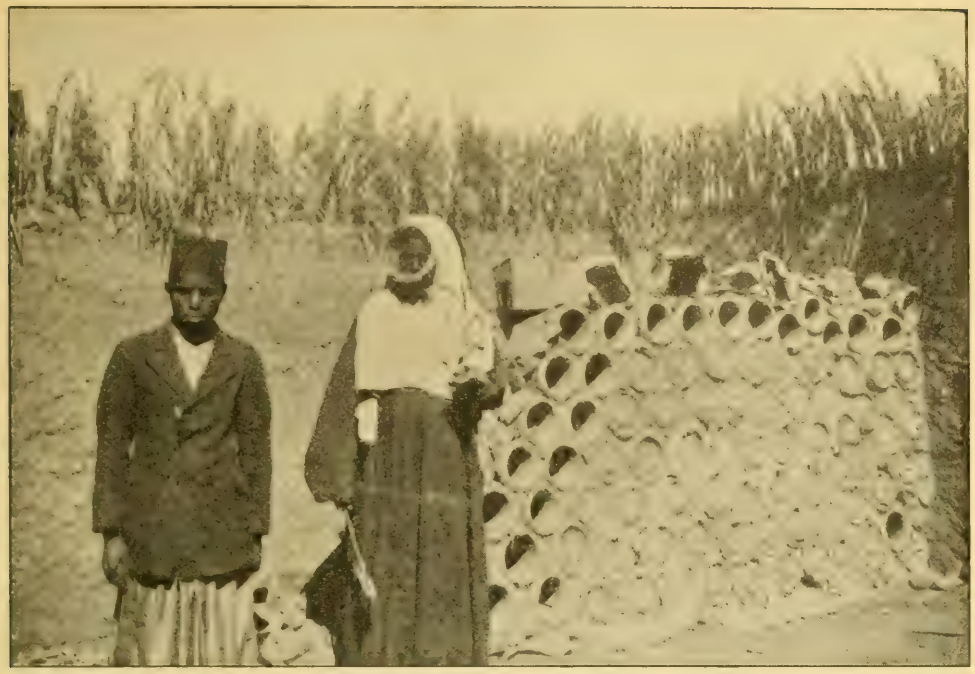
Tacoma, Wash.

PROPOLIS POISONING; ITS SYMPTOMS AND CURE

BY C. R. PARKS

Not heeding the oft-repeated advice to start with a few colonies of bees and work gradually into the business, Mr. De Loss Corey and I purchased slightly more than 300 colonies, and plunged into the game.

The first and most serious obstacle encountered by the writer was propolis poisoning. Never having heard of it, the poison was supposed to have come from ivy or poison oak; but salt water and soda (the



An apiary at Luxor, Egypt. Photographed by W. Percy Chase, Brookline, Mass.

remedy for these) would not cure it. Physicians were consulted, but they gave little relief.

I soon discovered that working with supers or old hives renewed or increased the poison; and on making inquiry I learned that propolis poisons some people. My eyes swelled almost shut, and the effect of the poison spread over a considerable portion of my body. The suffering was intense.

One doctor advised a mild solution of carbolic acid and water, which gave relief; and by increasing the proportion of the acid it would cure it, but often left the skin in an inflamed condition. I wrote to the bee journals and beemen whom I knew, but none knew of a remedy. Some of the propolis was sent to the Department of Agriculture for examination, but they reported no poison could be found.

That first season we averaged about $10 per colony. It was an unusual season. The next season a doctor advised me to try sugar of lead and tincture of opium for the poisoning. This I did. Two or three and sometimes four applications of this will cure it. I use it in about the following proportions: One teasponful of sugar of lead; one tablespoonful tincture of opium; about six ounces of water. Shake thoroughly, and apply with a small cloth or sponge. If too strong it will smart and burn; if too weak, more applications are required to cure.

At the end of the third season the writer sold out, Mr. Corey continuing in the business. We were living in the Plateau Valley, Colorado. Part of that winter and the following summer were spent in California. While there I applied propolis to my arm, and learned that it would poison me in California as in Colorado. However, the lure of the bee was too strong, and I returned to Colorado and from there removed to my present location in Utah, where I engaged in the production of extracted honey. In producing extracted honey I am not poisoned as much nor as severely as when producing comb honey.

Since coming here I have secured several valuable recipes for the relief of propolis poisoning.

The one I prize most highly is a powder —camphor, half a drachm; oxide of zinc, one ounce; starch, one ounce. Dust the affected parts well, and, unless it is a severe case, relief and a cure will be the result. This powder can be used about the eyes and other tender portions of the body without irritation; but it is well not to get it into the eye.



A Sicilian apiary, Taormina. Photographed by Mr. Chase.

Covering the hands and wrists with soap before working in propolis aids in preventing poisoning, and assists in removing propolis from the hands.

The following recipes are recommended:

1. Borax, two drachms; glycerine, two ounces; water, two ounces. Mix, and apply to inflamed skin.

2. Oxide of zinc, two drachms; lead water, one drachm; wine of opium, 4 drachms; rose water, four ounces.

3. Baume analgesique bengue will give relief, but will smart the eyes or other tender portions of the body. It can be secured from chemists.

Bear in mind that most of these prescriptions are poisons, and should be kept out of the reach of children.

Hayden, Utah.

THE USE OF WIRE SCREENS AS A SEPARATOR IN THE ALEXANDER METHOD FOR WEAK COLONIES

BY JOSEPH J. ANDERSON

The Alexander method of building up weak colonies requires placing the weak colony over a strong one with a queen-excluder between. My experience has been that the bees from the strong colony below will frequently kill the queen of the weaker colony above, and so the practice of putting a sheet of wire screen over the excluder was resorted to, removing it at night after the bees were all settled and quiet with very satisfactory results. To save the trouble of going to the bees at night—quite a chore where one has outyards at some distance—I thought it would work all right to place a sheet of newspaper over the excluder, leaving the bees to eat their way through the paper and enter the upper hive-body at their leisure. Two seasons of this procedure have resulted in a loss of fully seventy-five per cent of the queens of the weak colonies. The paper idea won't do. It is unnecessary here to discuss the reasons.

On May 6 of this year I treated weak colonies at the home yard, some of them with not more than a few square inches of brood. As I went through the bees I mark-

ed all the weak ones, then an equal number of strong ones. On the latter I placed queen-excluders, and over these excluders wire screen. Then, on these strong colonies so prepared, the weak ones were placed. In the evening, when the bees were settled, I removed the screens. This is done with a quick jerk.

May 14 an inspection showed that every one of these formerly weak colonies had from three to six combs well filled with brood.

This method of building up weak colonies I call Alexandering. Uniform success will attend the carrying-out of the plan, as outlined above, at least in our locality. But don't fool with paper or any other modifications.

The weak colony so treated should be left on the strong one for three weeks or more; and if the queen is any good your hive will be filled from side to side with brood.

One of the bodies now set on a new stand, using your judgment as to which. Your weak stock has now become a rousing colony with force enough to render a good accounting of itself; whereas, if let alone it would have died out entirely or taken the whole season to build up strong enough for winter.

Making the sheet of wire screen several inches longer than the hive, and cutting it in two pieces with the ends overlapping in the middle facilitates removing the screen, as half can be jerked out in front and half behind without disturbing the relative position of the hives.

Salem, Idaho.



The keeper of the apiary at Taormina, Sicily. Photographed by Mr. Chase.

THE EFFECT OF STORES UPON BEES

BY R. F. HOLTERMANN

Yesterday and to-day, although the weather is not very warm, we have been doing some needed work in two of the apiaries. In each we noticed a good deal of fresh spotting upon the black covers of the winter cases. I was much impressed with the condition, and I believe it is unusual for this time of the year. The spots were the excrement voided by the bees while on the wing, and it was almost solid, but strung out in lines. I attribute it, first, to the bad stores collected by the bees last summer, and which they are consuming now; next, to their confinement for unusually long intervals.

We have had three heavy frosts this

week. Those Monday and Tuesday nights were so severe that ice formed on a tub of water by the pump at our house. Another on Wednesday evening was not so severe. We also had two frosts last week. I do not know whether clover has been injured. It appears to me that vegetation must have suffered. I remember that, some years ago, after a frost somewhat similar, the farmers did not think frost had injured clover. Later it did not yield much honey, and when the farmers came to cut the clover the weight secured from the fields was a great disappointment to them. Time will tell.

I have a letter from a beekeeper in the Maritime provinces telling me that their bees had not been able to fly more than ten days since they had been placed on their summer stands. We have found it an advantage to give a five-pound jar of syrup to each colony.

Brantford, Canada, May 27.

BEAR CREEK APIARY

BY E. R. ROOT

One afternoon when I was in attendance at the convention at Denver, Feb. 16 to 18, I took a drive out with Herman Rauchfuss, with several others, in his auto, out to the foot-hills of the Rockies, in the immediate vicinity of Denver. Not far from those foot-hills Mr. Rauchfuss has one of his outyards called the Bear Creek apiary. This contains 228 colonies of bees, and is arranged in rows in the manner shown. It is a neat, well-kept yard. I stopped long enough to take a snapshot, and here it is. The bees have a range of alfalfa and other mountain plants in the vicinity. The territory around here is not overstocked, says Mr. Rauchfuss, and there are other good locations where there are practically no bees.

I would hardly dare to make this statement that there is room for more bees here, as most good localities are already overstocked; but Mr. Rauchfuss is acknowledged to be one of the best beekeepers in Colorado. It is evident he knows this particular locality, and whether it will support any more bees. His attitude toward possible competitors is as generous as it is liberal. He did say, however, that one beekeeper had been there and "had gone, thank fortune." If *that* man ever came back there again he would—well—er, it wouldn't do to say what he said—not that it was not printable, for it was; but it is not wise to say everything you know.

The Bear Creek apiary at the time of our visit was wintering nicely as far as could be seen; but the thing that interested me particularly was the fact that there were a large number of Caucasians; Mr. Rauchfuss said, contrary to our experience here at Medina, that this strain had given him no more trouble in regard to swarming than Italians. They were earlier to breed up, and, in fact, for all-around bees he liked them.

The drive in and around Denver among the foot-hills is interesting. On the occasion mentioned we went clear up into the hill country; and when I say *hill* country they are some hills all right. The elevation of this yard must have been considerably over 5000 feet, as we were constantly going up, up, up, all the time after we left Denver; but the little machine was equal to the occasion, and for all-around beework there is hardly anything better than a light car. It costs less to operate it per mile than any heavy machine.

BITTERWEED FATAL FOR WINTER STORES

BY S. A. FULLER

I have lost more bees this season than ever before. My colonies were never so strong in bees and stores in the fall. We had an early cold spell. When it warmed up, dead bees were hauled out by the thousand, and it has continued until now. Some strong colonies died out entirely, leaving quite an amount of stores. In all, up to date, I have lost 14 colonies out of 175, and many are now very weak. I have never had such an experience, and do not know what to make of it. Our fruit-trees (peaches and plums) are just now in bloom, a month late. We have had cold freezing weather with snow up to this date. To-day is the first real spring day.

Later.—I had no aster honey last fall, but did have 1000 lbs. of bitterweed (yellow



Bear Creek Apiary, owned by Rauchfuss Brothers, near Denver, Col. This apiary contains 228 colonies, and is situated near the foot-hills of the Rockies, on elevated ground where the bees can command a view of the range and of the entire country. It is in this yard that Herman Rauchfuss has their Caucasians which have given them such excellent satisfaction. We wrote him, saying that in our write-up of the yard we would be careful about getting beekeepers to overstock the territory. On date of April 5 he writes, "You need not say any thing about the locality being overcrowded, for there are lots of good locations where there are practically no bees."

dog-fennel). I used to feed those colonies which were light the latter part of August and the early part of September. I had some fifteen swarms in October. I gave them two, three, and four frames of this honey, and they were the first to go. Those that I did not feed came through all right. Right now in front of 100 hives are enough dead bees to make an ordinary swarm; but now they are building up fast. I find twelve queenless colonies. I am quite sure in my case it was bitterweed which caused my trouble.

It was the first time my bees ever stored any of it that I detected. I noticed, in opening the hives after the swarms had died, there was a very foul smell. There are no other large apiaries here, but many of two to ten colonies. Many have lost all or a part of them. I hope we may locate the cause, and thereby find a remedy.

Helena, Ark., April 15.



A group of speakers at the Tennessee convention. Left to right: J. J. Wilder, Cordele, Ga.; Dr. E. F. Phillips, Washington; Dr. J. S. Ward Nashville; and J. M. Buchanan, Franklin, Tenn.

TENNESSEE BEEKEEPERS TALK OVER PROBLEMS

BY J. M. BUCHANAN

A special meeting of the Tennessee Beekeepers' Association was held at Chattanooga, Tenn., April 28, 29, in connection with the Southern Conference for Education and Industry. Dr. E. F. Phillips called the meeting to order, and gave a talk on the "Essentials of Beekeeping." "Sources of Tennessee Honey" was the subject of a paper read by J. M. Buchanan, of Franklin, Tenn., who also spoke on "Co-operation in Improving Beekeeping Conditions in the South." J. J. Wilder gave an interesting account of the honey-plants of Georgia and Florida.

On the second day the subject of "Disease Control" was taken up and ably presented by G. M. Bentley, State Entomologist, and Dr. J. S. Ward, State Apiary Inspector. Dr. E.



Franklin Triangle and court-house, where the conference meetings were held.

F. Phillips spoke on "The Need of Better Winter Protection." Dr. Ward and Mr. Wilder gave demonstrations on handling bees.

There was a good attendance at the meetings, and much interest was manifested.

Franklin, Tenn.

THE TEN-HOUR DAY FOR BEES

BY C. E. FOWLER

How far do bees fly? how long are they gone? how many trips a day do they make? are very interesting topics, and I should like to give a little of my own experience.

Last August, when honey was very scarce, a neighbor asked me to remove a swarm of bees from his roof so the carpenters could shingle it. I spent one day trying to save the bees, using first two Porter escapes; but the bees went right through them the wrong way.

I do not condemn the bee-escapes, as the bees were, most of them, trying to get into their home. Perhaps the inside bees, in trying to get out, wedged it open. After I got the escapes in place I could not get them off to look at them, as they were fastened on the inside. Then I made one out of watch-springs; and by the time I got it working the bees were going through the roof like water through a sieve, so I decided to sulphur them.

I commenced the next morning about seven o'clock, after most of the field bees were gone. After killing the bees in the nest with sulphur I commenced to kill the returning bees, supposing, of course, that they would all be back in a couple of hours; but to my great surprise they kept coming back for ten hours, and were still coming back at 5 P. M. The next morning there was a gill of bees in a bunch hanging on the edge of the roof. Now, some of these bees made only one trip in ten hours. How far did they travel? If they spent a third of the time going, a third loading, and another third coming back, and traveled 30 miles an hour, they must have gone 100 miles. Of course they did not go that distance; but how far did they go? They seemed to be coming back nearly as fast at noon as at 8 o'clock, and gradually dwindled until 5 o'clock.

I found that they had a great many holes in the roof stopped up which they opened when they could not get through the bee-escape.



Nectar and pollen from apple-blossoms. Note the mass of pollen on the leg of the bee and the manner in which the bee spreads the stamens to get at the nectary of the blossom.

The bees were in the gable end in the projecting cornice, occupying a space about 6 x 14 x 36 inches, and had stored about 50 pounds of honey.

As I was closing the hole I saw a lot of comb about two feet below, and thought I had discovered another swarm; but red squirrels had been robbing the bees, as the pieces of comb were mixed with nut-shells.

Hammondton, N. J.

THE BEEKEEPER WHO IS NEVER STUNG

BY THE AMATEUR

He that keepeth bees among you, and saith he never gets stung, is a liar and the truth is in him not.

The beauty of using quotations from the Bible is that you can take anywhere from one word up and prove anything you wish to prove. The text here is partly from the Scriptures, especially the style, but mostly from somewhere else.

Being very susceptible for a time to all new ideas and innovations, I listened to the wise ones telling how they had handled bees for years and had never been stung. Of course I tried to solve the mystery, and pursued it as far as I could without putting up any good money for the "secret."



One day I questioned a wise man.

I now remember that none of those possessing the remarkable knowledge were among the successful beekeepers of the neighborhood. One day I questioned a wise man for two or three hours till he offered to sell me the secret for, I think, $3.49. I concluded he was still about a dollar too high, and that I'd better go home and look it up in the A B C and X Y Z. The nearest it came to what I wanted was that I should procure a veil, smoker, gloves, etc. But the wise man didn't use "sich truck." It wasn't necessary. Well, I gave up ever becoming possessor of the secret of knowing how to handle bees at all times under all circumstances without getting stung. But Fortune had ordained otherwise; for when my despair was the deepest the setting was being arranged for my entire enlightenment, and I didn't need to give up the $3.49 either. It all happened this way:



"Howdy, kid? Be ye the Amateur Beekeeper?"

One hot day in June when the honey-flow was going off I was grafting some queen-cells. I was busy at my work, and didn't know any one was within half a mile of me, when I heard a greeting from some one close behind me.

"Howdy, kid? Be ye the Amateur beekeeper?"

I looked up and saw a stranger. A description may as well be given here as anywhere. But the reader must bear in mind it was my first meeting with the stranger, and up to this time my last. He was a man about 45 years old, 6 feet 2 inches tall; and if he had been a beef steer I'd have said he was rather raw-boned; but as he was a man I might say his contour was irregular, with prominent facial features. He was dressed in a black suit made for his youngest brother. The pants, I well remember, fitted him snugly, and failed to connect with his shoe tops by two inches. This description may be wrong in parts, but I'll swear to that part applying to the legs, for I saw more of them than any other part.

I said, "Glad to see you. Yes, that's my name; but let me get you a veil. The bees are rather cross to-day."

He looked at me severely. "Now, look-a-here. I never take stock in sich truck—wouldn't wear it. Bees never sting me!"

"But," I persisted, "I have a veil in the honey-house, and my bees are quite cross to-day."



My visitor grew eloquent.

"Now, son, I handled bees when you wuzn't knee-high to a grasshopper, and I never wuz stung but twice in my life—onc't when I set down on a bee."

I don't remember now when the other time was, but presume it was when a bee sat down on him.

It might be well to state right here that this was the first time in my life I had ever seen one of those immune fellows among the bees, and I thought I might get a pointer or two from him while he was undergoing the acid test.

"I came up to talk to you about taking an agency on a gum I invented back in Missouri, and if you are the feller I take ye to be I'll give ye the exclusive agency of

this whole county; but ye're busy now; finish takin' them maggots out and puttin' 'em whar ye want 'em and I'll show ye the principles of a little model I have with me."

The grafting had been explained as I had read it in the A B C.

Every beekeeper is said to have in his apiary a colony or two that can be relied upon in an emergency, and I am no exception. Mine was next to my breeding queen; for though I requeened this colony twice it still retained its proclivities to sting on the slightest provocation, and I gave up trying to breed out this propensity, attributing it to "locality."



He trotted, ran, and then galloped.

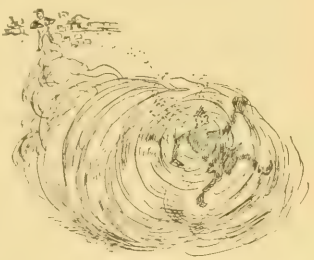
My visitor, in explaining his patent "gum," grew eloquent, swinging his leg like the baton of the musical director in an old-fashioned camp-meeting, and inadvertently struck the colony just behind him with his heel. Instantly they were upon him—ankles, legs, and face; and, although he protested fiercely that they didn't sting him when I asked him, I know that if bees were to go through the same process on my face I'd consider I had been stung. That is not all. They kept coming.

"Shall I give them smoke? I fear they will sting you."

"They won't sting if ye don't strike at 'em," he said.

Now, I am a rather human sort of person; and to clear my conscience I will confess that I was interested in (I almost said enjoyed) the situation. You would have thought those bees suddenly discovered some rare honey-plant right at their door from the attention they gave him. However, as they crawled up those tight black pant-legs they more nearly resembled bees trying to gather pollen from the goldenrod.

I did most of the talking now, for I didn't want to lose an opportunity of finding out how to keep from getting stung when in a tight place, and this man was backing off. Just then one hit him on the "dollar" of his nose. He snorted like a scared colt. I could see by the pained expression on his face that the half-hundred bees working on his legs were also beginning to penetrate the epidermis. I could no longer interest him in conversation. He backed off, tried to walk out of the apiary with dignity, but he couldn't get away fast enough. He trotted, ran, and then galloped. He bounded over the small brush like a tiger. Long after he was out of sight I could hear the smashing of limbs and the rolling of logs.



I had learned the secret of the fellow who never gets stung.

I don't know whether I was stung or not. I didn't feel it if I was. But I know I learned the secret of the fellow who never gets stung, and it didn't cost $3.49.

Bees Rioting in Chili

In February, 1914, while walking along the banks of the Rio Grande about half a mile from my place, I came to an old log mill. Bees were so thick around it that it was almost impossible to see through them. Thinking they were after flour or meal I paid no more attention to them until three days latter when I noticed them coming in loaded with something red. I again went to the mill and found a Mexican grinding chile. In spite of the fact that he had smudges to keep the bees out, they were actually fighting and rolling in the chile.

This year in March, I noticed the bees gathering sawdust or anything they could get for pollen. I put some graham flour out for them, and some chile also. In a short time the fun commenced. The bees could not have been more excited had I put out pure honey. They did not disturb the flour until they had used up the chile.

Velarde, N. M. HENRY SEVERSON.

Loafing in June

BY GRACE ALLEN

Well, yes; I admit it is prosily true:
There are plenty and plenty of things to do
Besides loafing here. But the wonderful bees
Are humming so steadily under the trees!
Then, too, there are roses and hints of a breeze,
And a marvel of green and blue!

Oh! how can you think on a morning in June,
When grasses are swaying and bees are a-croon,
That hurry and effort are always best?
My soul is adrift on a quieter quest—
The calm and content of a soft-breathing rest
As I pause with the bees in June.

Heads of Grain from Different Fields



The Backlot Buzzer

Well, here we are. Got 'em all nailed together but the last frame, and two pieces missing.

White Clover, but No White-clover Honey

Bees in this vicinity wintered well. Of 43 colonies cellared the last week of November, 42 came forth alive, and all in good condition when taken from the cellar, one half March 15, and the rest the first week of April.

The dead colony had no less than 20 pounds of honey, and the cause of death was paralysis with which they were attacked before putting into the cellar.

That surely is a fine picture of clover in Wisconsin, p. 360, May 1; but it does not look like white clover; and even if it is, it would be no guarantee that we should get any honey from it. As a matter of fact, we have had oceans of white clover in this section for the last two years; but it had no more nectar than pansy bloom.

Basswood, too, was nearly devoid of nectar in these parts last season.

White clover has wintered well, and we shall still look for honey from this source, even after our former disappointments.

Fruit-bloom is on, and the bees are improving their time gathering from the heaviest fruit-bloom we have seen for years. We have had no frosts to date to damage fruit-bloom. Dandelion bloom, too, is on, and is attracting the bees.

CARRYING BEES IN AND OUT OF THE CELLAR.

I read what Elias Fox says, page 382, May 1, on carrying bees out of the cellar by night, and wish to support his statement as being the best plan. I have followed this way for several years to my entire satisfaction. But for putting them into the cellar I reverse the time of day. Instead of the late evening hour I use the early morning hours, after a cool or cold night.

My working plan to put bees in or out of the cellar is this: I fill a large gunny sack with hay or straw, put it on my Daisy wheelbarrow, and very carefully put each hive on this cushion and wheel it to or from my beeyard over a carefully prepared way with so little disturbance of the bees that I hardly ever find it necessary to close the entrance.

Manawa, Wis., May 19. E. E. COLIEN.

Avoid Too Thick a Fence Separator

In using fences for plain sections is there any advantage, aside from better-filled sections, in using a ⅜-inch-thick fence instead of the ¼-inch-thick fence? In using beeway sections as you do, the bees, in my estimation, get a little better than a ¼-inch entrance into the super, and I thought perhaps bees would more readily enter and work in the super with the ⅜-inch fence than when using the ¼-inch. What's the truth and general experience in this particular?

[Dr. Miller replies:]

It is not entirely clear just what you mean as to thickness. The fences I have are about ⅜ thick at the posts, with the rails of the fence, the separator part, about 1-16. Fences may be made of different thicknesses, and I don't know whether the ¼ you mention refers to the posts or the rails. However, the general principle is all the same, and the question is as to the effect of increasing the thickness.

In the first place, I don't believe you will find that enlarging the passageway will make any very great difference as to the bees passing through or working above. Anything more than a sixth of an inch (the slots in a queen-excluder are about 1-6) will give as free passage as an inch, and the bees will work just as well over it. If you increase the thickness of the posts without increasing the thickness of the rails, that will make the comb thicker, increasing the danger of marring it. If you increase alike the thickness of posts and rails, that will leave the comb the same thickness, but will increase the tendency to ridginess in the section.

On the whole, if you make any increase in thickness, better try it first on a small scale.

Marengo, Ill.

The Critical Period in Queen Incubation

You have doubtless had experience in rearing queens in incubators with artificial heat. Can you tell me why it is that queens so reared out of contact with bees are so prone to die at the age of from two to four days? I have had a great deal of difficulty in rearing virgins past the fourth day; whereas if I get them five or six days old they seem to be able to live on almost indefinitely, or at least for a week or so. I understand my experience is common. I am pretty sure it is a matter neither of confinement, temperature, nor moisture, and have about decided it is improper food, but have not gotten any that will supply the need.

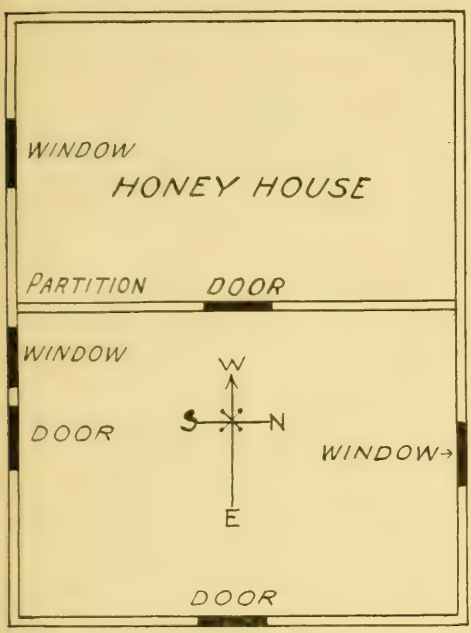
Seattle, Wash. GEO. H. BISHOP.

[Your trouble is doubtless due to having the temperature too high or too low. The internal temperature of a hive—that is, the proper one for raising cells—is a little lower than the temperature necessary for hatching eggs for chickens. We have referred this matter to our man who has charge of our queen-rearing, and he says that with plenty of ventilation, and temperature at about 97, he secures strong

bright virgins in an incubator; and that, moreover, he has no trouble in introducing them over four days old. Good extracted honey is the best feed for virgins. Get your temperature right and feed extracted honey, and you will probably have no trouble. —Ed.]

A New Arrangement of Windows and Doors

In reading an article by G. C. Greiner some time ago I conceived the idea of having two doors in my honey-house. This makes it possible to keep one door open all the time, screened, of course, while the honey can be carried in at the other door, where the bees do not bother when it is opened and shut.



Bees escape from the window to the south in the room with the two outside doors. This gives light also while the doors are closed. It is quite close to the door, but there appeared to be no other place for it. It was necessary to have one window in the first room on the sunny side, since bees escape more readily on the warm side of the building.

The building is located west of the apiary, where it is both convenient and pleasant. Dimensions are 16 x 12.

East Avon, N. Y. A. C. Gilbert.

Major Shallard's Honey-room Burned Out

In April I had the misfortune to have my honey-room at the home farm, South Woodburn, completely destroyed by fire. The building was of iron, 16 x 13 x 14, and contained among other things 2000 pounds of wax, eight-frame power extractor, wax-press, foundation mill, a quantity of carpenter's tools, jig-saw, etc. I first heard the roar of the flames at 8 o'clock in the evening; and on running out I saw the flames shooting out of the window above the extractor-stand. Help arrived almost immediately, and we got the engine and saw-benches away, and a quantity of hive material in the flat. We could get nothing out of the building. The heat from the burning wax was so great that it melted the iron castings on the wax-press and also on the extractor. An hour after the fire started the whole building was red hot, and looked like a gigantic glowing lantern. It was utterly impossible to get near it, and the water available had no effect. There was practically no insurance. I have the building up again all ready for extracting; but having to pay out £125 to replace the wax is not at all pleasant, especially as the season has been a very bad one. The loss is over £200.

S. Woodburn, March 25. Major Shallard.

A Beginner's First Winter

Having spent the best twenty-six years of my life as a traveling man over the entire United States, and now having retired, and being a lover of bees, I have taken up beekeeping for the pleasure there is in it. While traveling I tried to keep four or five colonies; but not being here to care for them they were a failure, as everything is without proper care.

I purchased six stands of a friend, and went to work. Although the business was practically a total failure in Minnesota last year, I found myself in the fall with 16 colonies and 15 lbs. of section honey, aside from winter stores. All were heavy but five. I feared these five would not winter; but I fed them for two weeks on sugar and water, placed them in the cellar with the rest Nov. 15, with about 10 lbs. of stores each. I have a Root cellar separate from the furnace-room, in which I set the bees. Over the hives I placed a ventilator 2½ x 3 feet, with a 2½-inch pipe extending through the window.

To do this I took out one pane of glass and replaced it with galvanized iron, so I could cut the hole to fit my pipe. Twice a week when carrying out ashes from the furnace I would open all the doors to the outside, and let in the fresh air for ten minutes. In extremely cold weather I would open the door into the furnace-room every night, thus holding the average temperature close to 45 degrees all winter. I set them out April 4, and found them all in fine order, but thought best to feed the light stands for two weeks. All are doing finely. I think I have thoroughly demonstrated that cellar wintering is the most successful plan if thoroughly looked after.

This year looks now to be a much better season, two weeks earlier than last. In the place of natural swarming I will experiment with the Alexander plan of dividing.

Fairmont, Minn. M. T. Haines.

Comb Honey from Two-story Hive

G. H. R., in Gleanings for April 15, page 335, in answer to W. L. Sherman, who asks, "What shall I do with my two-story eight-frame hives of bees in the spring when running for comb honey?" is mistaken when he says, "It is practically impossible to produce comb honey on top of a two-story hive."

I do not know how it is in Wisconsin; but I do know it works all right in Southern Florida.

In March and April the orange-trees bloom here, and my brood-chambers were so full last January that I thought of extracting a part of it from the frames to give the queen more room for depositing eggs therein, and have a larger working force when the orange bloomed. I undertook but one hive; and as there was but little bloom at that time producing nectar, the bees flocked in great numbers to the open hive, robbing.

I abandoned it, and thought out another plan. On each hive I placed one super of twenty-four sections on top of my eight-frame hives. I then constructed some brood-chambers without bottom-boards and placed them in the beeyard for future use.

My first swarm issued on March 15, and after that it was a daily occurrence until all had swarmed.

The swarms were hived in the hiving-box. The hive from which they issued was opened and the

combs examined. All queen-cells were removed, and the frames, bees, and brood placed in the bottomless brood-chamber. The old hive was furnished with empty frames; and the bottomless chamber, containing the frames and bees, was placed on top of the old chamber. The colony was then returned to old quarters—the old stand.

An entrance had been previously cut in the new bottomless brood-chamber, giving two entrances. I have already taken two supers of twenty-four sections each from many hives, and from all appearances at present I shall be able to get one or two more in a short time, leaving plenty of honey in the brood-frames for the colony.

I don't expect to come anywhere near my old friend Dr. C. C. Miller in number of sections from one colony; but for appearance and quality I'd like to exhibit with him.

Tampa, Fla. WILLIAM P. HENDERSON.

A Novel Hive-record

I find a record-sheet a great help in keeping track of the condition of my different colonies. The sheets may be filed away as a record, or copied in a record-book.

I find it much easier to scratch off this slip as the conditions are noted than to write each item down. It is much more accurate than to attempt to remember what one has seen after the work is done.

5-6-15

NO. 22

QUEEN
~~SAW~~
Did Not See
REMOVED
MISSING
SUP'CD'ED
KEG Killed egg in 8-c.
CLIPPED
NOT-CL'PD
GRUB in 8-cell
EGG in 8-cell
SEALED 8-cell
Introduced
~~LAYING~~
NO Q-C
CROSS
GENTLE

BROOD
1 2 X 3 ~~4~~ 5
6 7 8 9 10

HONEY
+ X 2 3 4 5
6 7 8 9 10

DRONE
1 2 3 4 5
6 7 8 9 10

Supers-Given
SECTIONS taken off
SWARMED
STUNG

When the first frame is removed and found to be full of honey I draw a line through figure one, under "Honey." Frame two has some honey in, and a cross is put before figure two; frame three has some brood in; and figure three under "Brood" has a cross in front of it. Frame four is full of brood, and so figure four has a line drawn through. The queen is seen on frame four, and "Saw" is crossed off; and as there are eggs in the cells, "laying" is crossed off. If this colony is cross, "Cross" is marked off; and if I get a sting or two while working this colony, "stung" is marked; and if she has many records so marked when the time of year comes for superseding, her head is pinched.

The slips cost me about a dollar a thousand, and are put up in pads of a hundred each for convenience, and may be torn off as used.

Princeton, Ill., Feb. 6. G. R. RICHARDSON.

Bee Gums in the Mountains

Bees wintered exceedingly well in this section of West Virginia—scarcely any loss at all. There has been a good early bloom, and bees have stored a little honey. Prospects are fine for a good honey year. How would some of you bee experts like to tackle a job of 150 colonies of bees in the old-fashioned round gum?

I just returned from a trip up the Williams River, trout-fishing. We stayed with a man who had about 150 stands, and every one was the round hive. I asked if they would not be better to handle in the modern hive. He said he didn't think they would, as he had never seen a patent hive. I explained the use of the modern hive to him, and he has a notion to try two or three when he gets time. On making inquiries about how they wintered he said he had lost only ten or fifteen this season, but last year he lost fifty colonies. He is situated among the mountains where the poplar and basswood are untouched. What could an experienced beeman do if he had his bees located where this man is? Don't you envy him?

Bolair, W. Va., May 17. L. W. STARCHER.

Heavy Minnesota Loss

Bees in this vicinity are almost a total loss. I have saved perhaps more than any one else, but have only 50 colonies left out of 130 placed in the cellar. Many of those are very weak. Our largest beekeepers who had from 100 to 125 colonies each last fall have lost all or nearly all, while most of the small owners are cleaned out completely. Numbers of colonies died with honey in combs.

April was warm; but it turned cold and rainy as soon as fruit-bloom came on, and the same condition still continues.

On May 18 everything was buried in snow, and a hard freeze was on.

Excelsior, Minn. MRS. W. S. WINGATE.

Calk Feeder with Paraffine

Mr. W. A. Sillifant writes on page 338, April 15, describing a method of making metal division-board feeders. If he will pour melted paraffine wax in the wood feeders, and, while hot, tilt the feeders so that it will run or flow into each joint of the feeder, he will have no trouble. What does not stick in the joints of the feeder should be turned back into the melting-pot. The wood can be made or bought cheaper than metal, and is not as cold as metal, even when coated with cork or sawdust both inside and outside.

Wabash, Ind. F. J. REDDIG.

Low Prices in Fresno, Cal.

The honey crop of the mountain districts along the Coast Range will not be large this year on account of very little rain. We will hope for better prices than 3½ cts., which is being offered at this time. We have a fine quality of honey—always light amber—and it never granulates. It seems a shame that more of it is not used in the United States, and that we have to depend on Germany for our output.

Coalinga, Cal. MRS. H. T. CHRISMAN.

Bees in Orchards

There is a kind of bee craze here now. All the orchard men are inviting the beemen to come on, and are buying hives to put in their orchards. Some time ago they wanted to declare bees a nuisance. "Every dog has his day."

New Almadin, Cal. PAT KEATING.

A. I. Root

OUR HOMES

Editor

Unto him that smiteth thee on the one cheek offer also the other.—LUKE 6:29.

Why lodge ye about the wall? If ye do so again, I will lay hands on you.—NEHEMIAH 13:21.

Behold, I create new heavens and a new earth; and the former shall not be remembered, nor come into mind.—ISAIAH 65:17.

Mr. A. I. Root:—I have often thought of telling you how I have enjoyed your Home department in GLEANINGS; but I notice a change in sentiment in the issue for May 15. It doesn't sound like A. I. Root—seems as if he were gone and somebody else had taken his place. I certainly feel that there were a lot of astonished readers when they read your answers to those two letters and noted your attitude in regard to the taking of human life. Right now the major portion of the world is in a great conflict —all struggling for the mastery. Right now when the subject is before the people, and the awfulness of war is in evidence on every hand, is our opportune time as never before to teach against it. That old theory of preserving peace by preparing for war has been proven defective, as the experience of the nations will testify. In your article you mention a few instances where a quick shot was effective in saving human life; but how would you like to be the one who fired the shot? Should we provide a six-shooter for our ministers, so they may have them in easy reach to use on some dear brother or sister in case of sudden violent insanity in the congregation? Are we not told to be wise as serpents and harmless as doves? Please don't hide behind George Washington. I do not think we should use him for an argument in favor of war. We have the Bible for our guide, and no one can read the teachings of Jesus Christ and believe them, and at the same time believe in war.

The chances are that there will always be war as long as this present dispensation lasts; but should the Christian people sit idly by and say nothing? or, worse, should they even say a few words in its favor?

You mention the man with "foolish religious principles." His principles are outlined in Matt. 5:38-45; also Luke 6:28, 29.

All the above is said with the utmost respect, and in a spirit of love. It seems to me we cannot be too careful about our influence. You are a man who has a lot of influence; and you are preaching to a large audience, and you will no doubt be held responsible for the position you take on this question. Let us not be wishy-washy. Let us take a stand on the side with the Master, for that is sure ground. I wish you would pray over this again; and, if the Spirit directs you, tell your readers about it.

John says we are to try the spirits to see if they are of God. See if they line up with the teachings of the word. I for one am not satisfied with your position, and I don't think the Master is either.

Morrill, Kan., May 27. F. E. POISTER.

Please accept my thanks, my good friend, for your kind letter above, although it is very plain and square-footed. Yes, you are right—my conscience did trouble me somewhat in regard to that Home paper, for it was, as you state it, a new departure; and yet God knows we need laws and *law enforcement*—yes, *better* law enforcement than we have had in times past. Permit me, dear brother, once more, to picture the circumstances under which I would use a revolver, if I had one, or anything else I could get hold of. Suppose a fiend in human form was trying to kidnap a young girl—say your daughter or mine, or it ought not to make any difference whose daughter she was. Suppose this fiend in human shape, as I have said, was carrying this girl away by force to bring her up to a life of shame. This has been done, and is being done just now, as our daily papers bear record. Now, if this imp of Satan could not be stopped in any other way, I would take a revolver or anything else I could get hold of, and *fight;* and if I succeeded in killing him I do not think my conscience would trouble me. The laws of our land, and the people, and the law of God would hold me guiltless.

There are other places where all or at least most of us are liable to be where, in order to save innocent, unoffending life, we must sacrifice a bad life. A clipping from the *Sunday School Times,* telling of how a missionary fought to save his life, brings out many important points.

Going to all sorts of places day and night as I did, in no case was I harmed.

Perhaps only once was I in personal danger; but the occasion was so interesting that there was no time to think of the danger.

I had arrived late at night at the home of a Christian. The country thereabout was infested with robbers, smugglers, thieves, disbanded soldiers, and destitutes and thugs—all tough to the *nth* degree. The people spoke bitterly of the inability and unwillingness of the magistrates to restrain them.

It was cold winter weather. The prophet's chamber I occupied had once been a stable, and, as a granary and general catch-all, had not yet lost its pristine flavor. So, as was my custom when not necessary to share quarters with my barrow man and others, I had stripped from the small window all the ragged paper that was pasted on the slats serving for a window frame, and had fastened the door wide open, and placed my folding-cot near it. Cold night air, deliciously fresh, filled the room. My room abutted on the narrow alley. In front of its door was a small yard whose streetward wall was about seven feet high.

During the night a slight noise in my room awakened me. By the light of a full moon, pouring through open door and window, I saw two men standing before one of my boxes, the one I had purposely placed in the corner of the room furthest from the door. It contained my personal effects, also payments for evangelists and schoolteachers—men who, for their part in the re-making of New China, receive the munificent salaries of twenty dollars a year.

The cover was up, leaning against the wall, and they were taking out the contents. To get out of the room they had to pass my bed—for which I was thankful. As a member of the University of Pennsylvania athletic squad I had been lucky enough to get on the police force of Philadelphia "for some inside experiences." In that work we had learned a few things that admirably supplemented some football tricks. I remember hurriedly thanking the Lord for it all. I got from the bed as cautiously and

quickly as possible, but not so quickly as to save a rush at me.

Chinese thieves expect no quarter, and usually give none When I retired I had mechanically laid a knife—big, sharp, and heavy—under my cot, within reach of my hand. It flashed over me: "Better not use that knife." And instantly I made a flying football dive for the foremost man, who was coming straight at me. I caught him in what is technically called "sure," just above the knees. The momentum of my weight toppled him backward like a log. He struck his head violently on the hard earthen floor, and one thief was temporarily out of business. I, of course, went down with him, and the other fellow was immediately on my back and brandishing a wicked corn-cutter. He lost it in the scuffle, and I was able to rise up with him clinging and shake his grip down to my waist. That was a poor hold to impede an opponent, as any football player knows.

Whirling hard, I broke his grip, faced him, and with a swift twist of his neck, tripped and jammed him down to the ground, knee on his chest, and fingers digging into his throat. The family heard the fracas and were soon on the scene, and in short order the rascals were bound hand and foot.

I had not time nor inclination to make a long journey to the county-seat and accuse the robbers before the magistrate. So I turned them over to the indignant villagers, who, under the village elders, gave them such a paddling as rascals rarely get outside the *yamens.* After some rough handling they were loosed, with the admonition that in the future, when out on their forays, they steer clear of that village.

Please note that this good missionary would probably have lost his life had he not in former years been a member of an athletic club. He was also an expert, as we take it, in football, and he says he remembered hurriedly to *thank God* for it all —that is, his first prayer was to thank the Lord for the *skill* he had acquired in athletics and football games. Now, here is one thing I admire him for. In contemplation of sudden attack he had placed a "big sharp heavy knife" within reach. He says it flashed through his mind, "Better not use the knife." I think it was the Holy Spirit that prompted this decision. He not only saved his own life, but he avoided taking life. In every emergency like this our constant prayer should be that we might avoid the *necessity* of taking life. In fact, I am not sure that we are ever excusable in taking life merely to save property. Just at this crisis in human history, it is right and proper that every follower of the Lord Jesus Christ should be considering and praying over this matter of war. My good friend W. A. Selser, of Philadelphia, who has no doubt been impressed with the Billy Sunday sermons, has just paid us a visit. He takes the ground, as I understand it, with the writer at the head of this article, that if Belgium had permitted the German troops to pass through their territory unhindered, and had turned "the other cheek also," as we have it in our text, this whole great war might have been averted.

Permit me, in closing, to give an extract from a sermon by our pastor, Rev. H. Samuel Fritsch, given to the remaining G. A. R. veterans on the second Sunday preceding Memorial day, May 23:

We need to remind ourselves that, just as God gives to different individuals different tasks, some one thing and some another, so also God gives to different generations different duties.

We need to remind ourselves of this truth, especially and particularly and emphatically in these days when half the world is war-crazy, and there is immediate **danger of the other half of the world** catching the disease!

There is a real and immediate danger that America, in the exciting and irritating atmosphere of the European war, lose her head. There are some people who feel that the only real patriotism is the patriotism that fights and kills. We need to remind ourselves to-day in unambiguous and unequivocal language that there are two kinds of war—necessary war which is patriotic and divine; unnecessary war which is treason and devilish.

You and your sleeping comrades served your country by the war method. You fought for a principle, for the perpetuation of the government, for the freedom of humanity. War was the task that your generation laid upon you, and we honor and commend you because you served your own generation in that generation's own and only way.

But it does not follow that therefore the task of this generation must also be war. I believe that, in spite of the irritating and iniquitous situation arising out of the European war, our President is right in his attitude of watchful waiting; and that to-day, from a mistaken motive of defending the national honor, to start a war and sacrifice the flower of America's young manhood upon the altar of jingoistic pride would be nothing short of damnable treason!

I believe that such men as Woodrow Wilson, William Howard Taft, and William Jennings Bryan are absolutely right when they assure us that America's task in this world-wide and world-wild holocaust and cataclysm is something other than war. And if the present generation in America is opposed to war and preaches against war, it is not that we denounce or discount the method and the task of the past generation; it is simply that we recognize the fact that the method and the task of the present generation is different from that of the past. And the only way in which we can serve our generation is to serve it according to the method and needs of our generation.

In regard to the scripture quotation from the good brother whose letter heads this Home paper, my understanding is that these passages in our texts refer mainly to neighborhood differences. It is a strong injunction to put up with injustice and abuse rather than to fight and go to law; but I do not think it applies to the midnight assassin. Under the influence of drink, or perhaps the modern dope, cases come up every few days where some wretch murders a whole family. Now, are we to understand that the father and protector of this family should do nothing at all to protect himself or the loved ones? Shall he not fight, and be ready to *take* life in order to *save* life, when no other course is left open to him? Will our good friend Poister answer this?

In regard to having a revolver right handy on a shelf under the pulpit, no, my good brother, I would not keep a revolver there, and I would not have it anywhere unless in the hands of a duly appointed policeman. Years ago I did have a revolver which I kept under my pillow; but after my conversion I put it away, and have never handled one since, and, in fact, have scarcely seen one; and since you call attention to it, I think now I would rather take the small chance of being killed myself rather than to keep a revolver, thinking the time might come when I could save my life by the use of it. My long-time friend who is taking down these notes suggests right here that the Pilgrim fathers always went to church with guns to protect themselves from the Indians; and a similar condition may even now exist in some parts of the world. In the book of Nehemiah we read that in building the walls of Jerusalem the men wrought with one hand and in the other they held a weapon. Shall we not face conditions as they *are now,* and work and *pray* for the time coming when such things will be *needed no more?*

The midnight assassin and the highway robber are, I am convinced, largely the product of our saloons; and when they are banished from the face of the earth the need of taking life to save life will have largely passed away, as in the language of our second text. Let me repeat what I have said about Manatee Co., Florida. There has never been a saloon in that county, and, God helping us, there never will be one. As a result, my good neighbor Mr. Rood had a poultry-house undisturbed for years right up against the fence along the highway. A passerby could, in fact, reach through and get a chicken if he wanted to, and yet our population is largely *colored people* whose loose habits and fondness for "chicken" have been proverbial. So long as we have the rum traffic we must fight. May God be with us, and help us in this fight until the partnership now existing between our nation and the liquor-traffic shall be ended.

SOCIALISM, CHRISTIANITY, ETC.

Mr. A. I. Root:—In my copy of GLEANINGS for Dec. 1, under the heading of Our Homes, I noticed your views of socialism expressed, as likewise our brother Boone's. You stated that you were liable to put your foot in a hornet's nest if you discussed this subject. GLEANINGS has always seemed to be an impartial magazine based upon truth and not fiction.

Mr. Root, I admire your religious views, and am a lover of the Bible; and it was the Bible, and particularly the teachings of Christ, that first opened my eyes to the glaring injustice of the present capitalist system. This system uses the dollar as it god, and it will end when one man owns the world and all in it. It has held up profits as its Christ. For profit the liquor traffic exists, the tobacco traffic also, and the present social evil.

May I not say you were mistaken or misinformed when you stated the Socialist party was in favor of the liquor-traffic? We are for the prohibition of the manufacture and sale of liquor, or at least the majority are, throughout the world, and, likewise, the upbuilding of the laboring class. All men are or should be laboring men by the Bible's teaching.

Now, Mr. Root, is it the laboring man or capitalist that finance the old parties? As it is the capitalist, how can the laboring man expect laws made in his interest?

As God has put enough food, shelter, and clothing into this world for all, why do not all enjoy it? Is it right for one man to corner or own nearly all the necessities of life and withhold it from the producers? Why are not the things used publicly owned publicly? or the means of transportation, production, and distribution? This would be like a swarm of bees all working and producing for the common good. What would you do with a colony of bees that would allow the first workers of spring that collect pollen to hold up the colony for ten cells of beebread apiece for it?

While I do not like the manner of the attack of comrade Boone, I still mantain that all laboring men should support the socialist movement; also all professors of Christianity.

Newaygo, Mich., Dec. 24. A. A. WOODRUFF.

My good friend, if I understand you correctly, as you state it I am a Socialist. I do most vehemently object to one man or a gang of men cornering the necessities of life; and I am strongly in favor of government ownership, so we can all share alike, as fast as it can be brought about. I am greatly pleased to hear you say, indirectly if not directly, that socialism indorses the gospel of Christ Jesus. If this is true, then I gather from reading a great mass of periodicals that a large part of the Socialist party are "away off" in their ideas and methods. As socialism is pretty well up before the world, I leave our readers to judge. I agree with you that our old political parties have been dominated largely by capitalists. But this is fast passing away. The laboring people, and especially the farmers, are making themselves heard. The downfall of the liquor-traffic is a striking evidence of it.

Later.—Since the above was written I have seen somewhere a statement in regard to the number of people employed in the liquor business who belong to the union. I think it was a good many thousand; and inasmuch as these would lose their occupation by prohibition, it was stated the union could not indorse nor recommend prohibition.

A LETTER FROM TROUBLED MEXICO.

Mr. Root:—The reason that I delayed sending my subscription was that it seemed that foreigners would have to leave Mexico. I have asked a friend of mine who lives in California to renew my subscription. It is a great pity that your articles on gardening are not more widely known. From what I read in GLEAN-

INGS I should judge land in Florida to be more productive than in this much-praised portion of Mexico. Take, for instance, cassava. It appears that 25 lbs. per hill is not uncommon. Down here three or four pounds is a big yield, and it sells for 5 cts. per lb. Thirty-five bushels of corn per acre is also a big yield here. Under these conditions, Americans, in order to exploit tropical agriculture, have no necessity for deserting the protection that the stars and stripes afford them. F. H. BREAKELL.

Perez, V. C., Mexico, April 29.

My good friend, I am sure that our Florida soil is, as a rule, no better than yours. Where we got great yields, say ½ bushel of dasheens from a hill, we turned under a great quantity of vegetation—grass, leaves, palmetto, weeds, etc. It was considerable labor in the first place; and since then we have been using poultry manure and stable manure and chemical fertilizers to some extent, keeping down all weeds until the cassava gets a start. There is also a vast difference in Florida soils. In fact, we often have good and bad spots on a single acre. But intelligent management will as a rule make the bad spots good unless they are exceedingly bad. May God grant that poor Mexico may have good protection, and that right speedily, such as we now enjoy here under the stars and stripes.

HIGH-PRESSURE GARDENING

SPINELESS CACTUS FROM TWO POINTS OF VIEW.

It is of great importance that the real truth about this plant be made known. On page 429, May 15, I told you of an advertiser who has ten different varieties, from 60 cents up to $5 a leaf. I am now going to give him some free advertising.

I have told you before that I have one leaf of the fruit-bearing cactus that cost me $1.75; and on page 473, June 1, we are informed there are buds on the leaf already, and we propose to keep our readers posted.

Now, here is a clipping from the circular that induced me to invest; and I must confess that the prospect of "fifty tons of beautiful and delicious fruit" is what got hold of me largely.

On good soil, some varieties of spineless cactus will produce fifty tons per acre the first year, one hundred tons the second year, two hundred tons the third year, and four hundred tons the fourth year, and fifty to two hundred tons per acre on poor sandy land, without irrigation or fertilizer, some varieties producing fifteen slabs the first year, forty-five the second, ninety the third, and one hundred and eighty the fourth. Some varieties will produce fifty tons of beautiful and delicious fruit per acre which can be kept like apples and shipped without ice, and which contains over 30 per cent more sugar than sugar cane does.

It has produced nearly fifty times its volume in one season, and over two hundred slabs from one slab within two years in north Florida, thereby excelling the world's record elsewhere. It is growing successfully in several places in Florida now.

Monticello, Fla. SAMUEL KIDDER, Nurseryman.

It is true I have had in mind writing my good friend Prof. Rolfs, of the Florida Experiment Station, but for some reason I have neglected to do so; therefore you can imagine with what interest I read over and *over* the following, clipped from the Jacksonville *Times-Union* of May 20:

FROM DIRECTOR ROLFS.

Farm and Home, of Springfield, Mass., had the following recently:

"In *Farm and Home*, November 1, E. P. Powell states that the Florida Experiment Station reports favorably upon the results obtained by growing spineless cactus without irrigation. This is quite contrary to the facts. The results of the Florida Experiment Station with the growing of spineless cactus have been about as unfavorable as could well occur.

"Further down in the same article Mr. Powell states that fat cattle can be seen at the station that have never seen water otherwise than that which is produced by the cactus leaves. This is also contrary to the facts in the case.

"All of our attempts to grow spineless cactus, which include thirty varieties, as well as the attempts of the Department of Agriculture, have given negative results."

This is signed by P. H. Rolfs, Director Florida Experiment Station.

This is not all the information of the same nature we have in our possession, but the above will serve to show what is the attitude of agricultural scientists regarding spineless cactus. These men have experimented without any prejudice or personal interest against spineless cactus, and their conclusions all agree as to its lack of real merit. We special agents of the United States Department of Agriculture are under instructions to conserve the welfare of our demonstrators and co-operators, and have no personal ends to gain in warning the farmer against engaging in undertakings that threaten to take his money without giving him any return for the expenditure of his money and labor.

The Department of Agriculture, as I understand it, has been for some years making tests of Burbank's spineless cactus in California. The bulletin concerning it can be had on application. I have already made mention of it. Now, it is exceedingly important, especially to the good people of Florida, that they should have the *real truth* in regard to the spineless cactus. It was Burbank who gave it the boom, or at least the Burbank Company. We have been repeatedly told that Burbank himself is not responsible for what the *Burbank Company*

claims and advertises. This being true, he certainly has the power to forbid the use of his name did he choose to do so. Our California friends—at least a great part of them—indorse Burbank, and they feel hurt whenever I presume to criticise him or the Burbank Company. Very likely new facts are being daily brought out in regard to the cactus as well as everything else. I regret that Professor Rolfs did not put a date to what he says above. I am especially interested because there are people in the neighborhood of our Florida home who have invested as high as 1000 "slabs" for one planting. I hope to give our Florida readers photos of these plants occasionally, so they can see for themselves what growth these wonderful "creations" (and I hope they honestly deserve to be called such) are making.

Later.—Our good friend Borchers, of Laredo, Texas, has sent us something like half a dozen bulletins from the Department of Agriculture in regard to spineless cacti. From a "summary" from one of these bulletins I clip the following:

THE PRICKLY PEAR AS A FARM CROP.

The experimental plantation cost nearly $9 an acre, including all expenses, beginning with the breaking of the raw prairie and ending with the cuttings properly placed. With good labor and proper management this expense, it is believed, could be reduced to $6 or $7 an acre. Even $9 per acre is low for a plantation that does not require renewing for fifteen or twenty years.

A conservative estimate of the annual production of prickly pear under cultivation is 22 4-5 tons, or enough roughage for one bovine animal for a year from each acre of ground. This is to be harvested biennially.

Cattle, sheep, goats, swine, and even chickens will eat the crop readily at any time of the year.

Eight times as much growth of prickly pear has been secured under cultivation as was obtained without cultivation in ungrazed pastures.

More than six times as much roughage (actual feeding value) has been secured during the past two years from prickly pear as from sorghum.

From another one I quote as follows:

Our experiments seem to show that when prickly pear is fed with cured fodders or grains the digestibility of both is increased. For this reason prickly pear has a greater food value than is shown by its analysis and digestion coefficients.

The steers seldom drank water when fed prickly pear alone. In fact, in feeding a ration of 100 pounds of this feed per day the animals obtained from the feed over 8 gallons of water, which is more than was usually drunk by them when fed cured fodders alone.

Animals scour quite badly when fed prickly pear alone; besides, other feeds are needed to supply the proper amount of proteids; and for these reasons it is better not to feed it alone.

A ration for a 1000-pound milch cow of 50 pounds of prickly pear, 10 pounds of wheat bran, and 10 pounds of alfalfa would furnish about the correct theoretical amount of nutrients, in which the ratio of proteids to carbohydrates would be 1 to 5.46.

As both the above were from bulletins published in 1908 (seven years ago), very likely considerable progress has been made; but as the above facts seem to be pretty well established, it gives me considerable enthusiasm. I am especially interested in growing spineless cacti for poultry.

KAOLIANG, A POSSIBLE RIVAL OF FETERITA.

We clip the following from the *Countryside Magazine:*

A NEW FOOD STUFF.

From South Dakota comes the news that kaoliang is being eaten with relish by man and beast. The School-of-Agriculture girls have made it into griddle-cakes, waffles, bread, doughnuts, muffins, and numbers of other goodies. Livestock eat the forage and seed-heads. The home economics department of the School of Agriculture is preparing a list of kaoliang recipes for distribution among the farm women of the state.

Kaoliang is a non-saccharine sorghum, introduced several years ago by the United States Department of Agriculture, to fill the demand for an early-ripening grain sorghum on the great plains of the North. It has been found to be a satisfactory yielder in the driest years. In a two-year test, it yielded better than corn. It matures about September 15.

Kaoliang is one of the forward steps in making the most of the earth. It is by such steps as this that men go forward toward the time when there will be plenty for each member of a world population inconceivably greater than ours. Kaoliang is a lesson in making the most of things as they are.

I have searched our catalogs, but can find no mention of kaoliang; neither have I heard of any such plant. We learn from the above that it was introduced by the Department of Agriculture several years ago. If so, some of our readers in South Dakota may be able to tell us something more about it.

While I am on this subject, our recent experiments in cooking feterita did not turn out to be as successful as when we tried it in Florida. The whole grain was boiled one whole forenoon, but it did not get soft as with our first experiment. The only reason I can offer for it just now is that the sample sent us by mail had been freshly harvested, and was easy to cook on that account. We shall soon be able to settle the matter, as you will see by the letter below, from our Florida garden:

I planted the cassavas about the 10th of May, and also the sweet potatoes. The jabotica is growing nicely, and is pretty. The feterita all headed out, and is beautiful. I am planning to send you a head of it when it gets ripe. The hens are not laying much. They all want to sit; but I shut them up to break them.

The wheat is higher than I am, and is still growing. Mr. Harrison had me get out three baskets of dasheens to send by mail. I am with Mr. Keller picking tomatoes.

Manatee, Fla., May 26. WESLEY WELCH.

The grain mentioned above is the Egyptian wheat. When I left Florida the last of April it was not a foot high; and if it has grown higher than Wesley's head in just

thirty days it certainly seems to be a success in Florida.

DASHEENS TO DATE.

There were so many calls for the tubers in pound packages that we have just used up our stock brought from Florida some time ago. Since then we have been filling orders direct; and when Wesley wrote his letter they had three half-bushel baskets ready to mail. If any of our readers still want them, they can get them by sending postage to C. L. Harrison, Bradentown, Florida.

In regard to shipping tubers to foreign countries, we have just received a report from A. R. Stachling, of Berri, South Australia, which reads as follows:

We have a package of forty tubers that came to hand sound, with sprouts started on all except three.

RAINBOW CORN, ETC.

Mr. Root:—When I read the last GLEANINGS I learned why my Rainbow corn didn't have any rainbows. I planted the grain you sent me, and they all came up and are growing finely; but with the exception of a few leaves that have some little stripes of white on one edge it is as green as any corn. They have a joke on me now, as I gave it a conspicuous place in the front yard.

Dade City, Fla., May 21. C. H. TIDD.

My good friend, do not be discouraged. I think when your corn gets a little taller you can see the rainbow colors all right. I remember when I first planted the rainbow corn I was a good deal discouraged, as it showed little or none of the colors until it was toward a foot high; but a little later it went away ahead of my expectations.

"CORN-SCRATCHERS" FOR MAKING GREEN CORN MORE DIGESTIBLE.

Mr. Root:—I notice in GLEANINGS that you are interested in corn-scratchers. I enclose a sample of a home-made corn-cutter that I have made for friends. To remove corn from the cob for cooking, hold the ear of corn with one end resting in a dish. Slide the cutter over the rows of corn till all is cut, then reverse the cutter and scrape the pulp from the cob. It can be used for preparing the corn for eating from the cob. Score a section; prepare, and eat and repeat. The corn will almost fall in one's mouth. WANTON D. SLOCUM.

North Dartmouth, Mass., April 1.

Since our remarks in regard to the above, several communications have been sent in. One of them describes a corn-scratcher made of a piece of tin. The tin is first cut out something like the shape of a spoon flattened out; but the spoon part would, perhaps, be a little larger. Now, with a punch, V-shaped points are cut in the tin, the points being bent outward, something like a horseradish-grater. After these points are punched out, the spoon part is bent in a curve so as to fit the ear of corn. As you take it by the handle and draw it lengthwise over the corn, the sharp points will rasp or tear open the hulls. Our good friend, whose letter appears above, sent us a couple of very neat scratchers made of aluminum. I do not know whether he is prepared to furnish them for sale or not. You can find out by writing him.

POULTRY DEPARTMENT

STARTING EGGS UNDER HENS BEFORE PLACING THEM IN THE INCUBATOR.

I believe every one who has tried it is satisfied that better hatches are secured by giving eggs to sitting hens for the first three or four days. To go still further, a sitting hen will produce more fertile eggs than any incubator. We have abundant evidence of this. Our good friend Keyser, who is one of the best authorities on poultry in the world, said that he, some time ago, gave a sitting hen some eggs that had been thrown out of the incubator as being infertile; that is, the incubator had not succeeded in starting any germs. He afterward forgot all about it, and the hen succeeded in hatching chickens from the biggest part of those eggs that the incubator had declared to be non-fertile. The manufacturers of incubators are a little slow about acknowledging this—at least most of them are. If you doubt it you can test it yourself. I have made several experiments along that line. I do not mean to say a hen will produce more good strong *chickens* from a given number of eggs than any incubator. Below is a letter along the same line:

Mr. Root:—We have been told that when eggs are placed a few days under a hen, and then transferred to the incubator the hatches will average better than if placed in the incubator in the beginning. It seems to me if this is true the hen must wear the bloom or mucilaginous substance off the egg so the embryo can breathe better. If this theory is correct, why not wash off this substance in water, then place them in the machine with the assurance that we shall get a better hatch? Please test this matter, and report in GLEANINGS if there is anything to it. If this idea has ever been presented in print I have never seen it.

Ozark, Mo., Jan. 30. S. S. LAWING.

My good friend, I at one time had the same thing in mind which you mention; but I believe most people who have used incubators largely say they would rather not have the eggs washed at all. I have ob-

served as you have, that the hen, by rolling the eggs about, very soon rubs off the outside bloom of a newly laid egg. In order to get some idea of just how *much* a hen tumbles her eggs around I once slept with my head close to a box containing a sitting hen. For perhaps an hour or more after placing her in her new surroundings she did not make a move; but about midnight she commenced kicking those eggs around in such a way that it seemed she would certainly smash them against the sides of the box; and she kept it up so frequently for the rest of the night that I scarcely got any sleep at all. No wonder the glutinous covering was scoured off.

Another thing that seems to run rather against your theory: about the best hatch I ever had, and some of the strongest chickens I ever had, were from a sitting hen that got out in some black sticky mud, and then got back on her nest. Her eggs were so daubed over with the dried-on mud that I did not expect to get a chicken; but I did not get time to wash them off, and the result was as I have told you. I do not think I have ever seen the matter touched on in any of the poultry journals.

TEMPERANCE

"GOD'S KINGDOM COMING" ONCE MORE.

When I found the following in the Cleveland *Plain Dealer* of May 25 I said, "May the Lord be praised for this unanimous decision of the engineers of America." Read it, and see if you cannot say the same.

ENGINEERS FAVOR DRINKLESS NATION; AMERICAN AND CANADIAN DELEGATES VOTE UNANIMOUSLY FOR PROHIBITION; DECLARE LIQUOR AND EFFICIENCY DO NOT GO HAND IN HAND.

The Brotherhood of Locomotive Engineers at the session at its convention yesterday afternoon indorsed state and national prohibition. This action was taken by unanimous vote of the 819 delegates, representing 74,000 locomotive engineers in all parts of the United States and Canada.

Immediately after the convention had voted on the prohibition question the Canadian delegation, composed of eighty-five delegates, asked for the privilege of taking a vote. This contingent then cast a unanimous vote indorsing prohibition in Canada.

The resolution was introduced unexpectedly. Several members took the floor in its support.

The action of the engineers was purely non-political. It indorsed no party, but simply went on record against the traffic in liquor.

SHOWS TREND OF TIMES.

"This is simply an indication of the trend of the times," said one of the officers of the organization after the meeting. "Engineers of North America have been trained for years that drink and efficiency do not run hand in hand.

"If any one needs a clear head it is the man in the cab. The fellow back in the sleeper may drink a cocktail if he wants to; but we who have to keep watching signals every minute know that if we are not at our best the man in the sleeper and we ourselves will pay with our lives for carelessness."

It was stated at yesterday's meeting that the report of the Interstate Commerce Commission for 1914 showed that of all the engineers in service in the United States last year only two ran past a signal, and one of these is believed to have been dead when he passed the signal.

Copies of the convention's action will be sent to the official organization headquarters of the political parties, and to others who may be interested in the movement to make the country dry.

I clip again from the *Plain Dealer* as follows:

The Ohio Women's Christian Temperance Union yesterday expressed its appreciation of the brotherhood's action in indorsing state and national prohibition. The following telegram was received yesterday from Florence D. Richards, of Columbus, state president:

"The Brotherhood of Locomotive Engineers, Cleveland, O.: The Ohio Women's Christian Temperance Union sends greetings and grateful appreciation of your splendid resolution for prohibition. May the words of Moses, 'Blessed shalt thou be when thou comest in and blessed shalt thou be when thou goest out,' be verified to each member of your brotherhood.

FLORENCE D. RICHARDS,
President Ohio W. C. T. U."

KANSAS, THE "DIED-IN-THE-WOOL" PROHIBITION STATE.

Perhaps some of you will say that the story below has been told in GLEANINGS already—may be twice; but the following, which we clip from *Better Farming*, tells it in a little different manner; and, besides, it is something like the "old, old story"—it ought to be told again and again, until every other state in the Union, and especially the wet states, begin to "sit up and take notice."

EXTRA DRY!

Kansas, the original dyed-in-the-wool prohibition state, is dry; yes, extra dry. Of course, it has killed business in Kansas to go dry and stay dry as it has. Here are a few figures that show how prohibition that is enforced has ruined that state:

In 87 of the 105 counties in Kansas there are no insane.

There are no feebleminded in 54 counties.

There are no inebriates in 94 counties.

Thirty-eight of the county poorhouses are empty.

Fifty-three of the county jails were recently empty, and 65 counties could boast no contributions to the state penitentiary.

There are less than 600 paupers in the state.

Some counties have not called a grand jury to try a criminal case in ten years.

Recently Kansas had over $200,000,000 in the banks.

The farmers own more than $225,000,000 in live stock.

In one year the people have added $45,000,000 in taxable property.

The mortality rate has dropped from 17 per 1000 to 7 per 1000.

Only 2 per cent of the population is illiterate.

William Allen White recently stated that Kansas had more college students per 1000 population than any other state, though a rival writer dug up statistics to show that Iowa, a neighboring state, and one that has rapidly "dried up" the past ten years, has this honor.

See what prohibition has done to Kansas!

A Cleveland daily of last week informs us that Kansas is the richest state in the Union in proportion to its population.

TEMPERANCE CAUSE—A NATIONAL DEMAND.

The temperance cause is not and cannot be narrowed down to any party, but is a national demand that overrides committees, politicians, and platforms and looks only to the individual invested with government. Hence we need now a healthy sentiment created that refuses to allow any party to try to monopolize our voters, but insists on every party affirming that "any alliance or combination with crime or criminals is repugnant to good government, and must be suppressed wherever found to exist." There is no standing still. We must move forward or retreat. Retreat? Never! We are listening for the clarion call of a new advance.

Bladen, Ohio. C. H. CARGO.

ALCOHOL IN HOSPITALS; £23,000,000 FOR DEFENSE AND £180,000,000 FOR ALCOHOLIC DRINK.

Our long-time friend Herbert J. Rumsey, of New South Wales, sends us the clipping below from the *Daily Telegraph:*

A "DRY" HOSPITAL; DRINK AND DEFENSE; ALCOHOL NOT A VALUABLE MEDICINE.

Only £49 2s 6d was spent by Royal Prince Alfred Hospital in drink during 1914 on its 7237 in-patients admitted during that period. This works out at just over 1½d, or less than 1¾d, per patient.

These figures were quoted with pride by Sir Thomas Anderson Stuart yesterday, who added that this satisfactory state of things was no rare phenomenon, being only the last of a similar series of years. There being 40 medical men on the staff entitled to prescribe alcoholic stimulants when they consider them necessary, it was clear that their low rate of consumption was not due to the fads or opinions of certain members of the staff, but must be the outcome of the practice of the medical men generally. The rate of expenditure was: 1884, 7s 9d per patient; 1894, is 1s 4d per patient; 1904, 7d per patient; 1914, 1½d per patient.

This led Sir Thomas to remind his listeners at the annual meeting that there had been a growing conviction that alcohol was not the valuable medicine it used to be considered. In 1884, with 140 beds, the cost of stimulants was £715. In 1914, with three times the number of beds, it was only £49. And was not their mortality rate this year the smallest on record? Nor must they forget this, that 1½d worth was the average. Some patients who were very weak, such as recoveries from typhoid, had champagne—the majority of their patients never got a drop of alcohol in any form. He took the first hundred patients in the list. Of these 7 got alcohol 93 got none.

"Alcohol," proceeded Professor Anderson Stuart, "is a drug. In our hospital accounts it is included under the head of 'drugs and surgical appliances.' It is always as a drug that we should think of it. Speaking entirely personally, I might be permitted to counsel earnestly all who value individual and national efficiency to avoid the use of alcohol in any form, and in even the smallest quantities, except on the written prescription of their medical attendant; for, as the events of the day in connection with the great war prove, it is the most soul-destroying, body-destroying, nation-destroying substance ever known. And yet since the inauguration of the Commonwealth in 1901, while we have spent 23 millions on defense we have spent 180 millions on alcoholic drink.

In regard to the standing of the physician who furnished the above statement, friend Rumsey writes as follows:

Dear Mr. Root:—Sir Thomas Anderson Stuart is not a teetotal crank, as some folks are apt to call us. He is a thoughtful man who considers every word before he speaks, and his opinion goes a long way here. He is Dean of the University, and the head of all medical-education matters in this state.

HERBERT J. RUMSEY.

Dundas, N. S. W., April 19.

The reader will remember the figures above are in pounds and not dollars, and hence should be multiplied by five.

ON THE BOOKSHELF

Practical Cement Work

By W. B. Henry. An elementary treatise on cement construction. The Concrete Age Publishing Co.

When a practical workman of large experience writes on his specialty for the direction of other workmen, his statements are usually thoroughly sound. This manual is of that nature.

Realizing that much of the information on cement construction is for the architect and contractor rather than the workman, and that what does concern him is often too technical for his comprehension, Mr. Henry has explained in the simplest form the facts which the man with the trowel should have.

The elementaries of cement chemistry, the history of its use, and directions for mortar and concrete making, precede the directions for work with foundations and walls, cement plaster and stucco houses, sidewalks, and floors.

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JUL 1 1915

Gleanings in Bee Culture



Vol. XLIII JULY 1, 1915 No. 13

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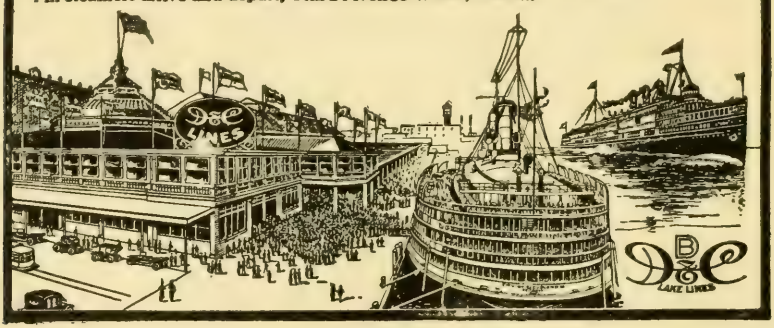
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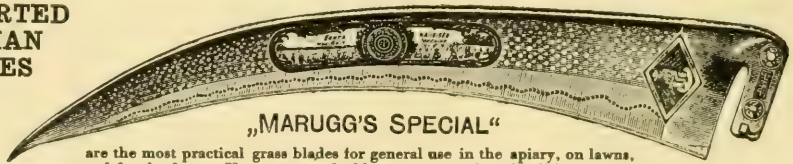
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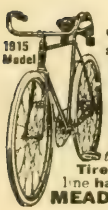
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EDITORIALS

Honey Crop Conditions; A Queer Season

The severe and prolonged drouth in southern Texas, cold chilly weather in the first part of the season in California, frost and freezing, and backward weather in Colorado and the mountain districts; too much rain and cold over a large part of the clover districts in the north central states where clover was promising; drouth in New York and parts of Pennsylvania, and unfavorable weather in the East, have had a tendency to put a damper on the hopes of beekeepers over all the country. In the mean time, conditions have improved in California, and some beekeepers have already secured a crop.

Up to as late as the 24th of June we have been having cold nights and cold, windy, sunless days. Clover was abundant in patches; but the temperature was too low for the proper secretion of nectar. Precisely the same conditions prevailed in many other localities where clover was promising. But now, fortunately, the continued spell of cold has been broken, and good honey weather is now on, and it looks and *feels* as if it would stay on. Our bees have taken a new start, and there is just a chance for us to secure some honey, as basswood was never more promising. In Michigan, Wisconsin, Minnesota, Canada, northern New York, and the New England states, this warm weather will probably come soon enough to catch all the honey that there may be in clover. In the clover districts further south clover has been out for two weeks, and there are good chances of a light crop, as there are at least ten days more of clover, with splendid prospects for basswood where there is any.

Taking it all in all, it is impossible to predict what the clover crop will be, although it is safe to say it will not be large, except, perhaps, in the more northern states.

Many reports speak of the immense amount of clover in bloom, while others say that it is very scarce.

We hope our readers, as soon as they read this, will continue to send in their postal-card reports. They are mighty helpful in making up these honey reports.

Prices should have an upward trend on all grades of honey, particularly on southern honey, which has been a failure in many parts of the South.

Those Patches of Yellow Sweet Clover Next to the Home Apiary

When we let loose our carload of bees from Texas (referred to elsewhere) there was a perfect roar on the yellow sweet clover; and notwithstanding white clover and alsike were out abundantly, the bees seemed to prefer the yellow blossoms, although they worked on both.

Yesterday, June 22, the temperature was down to 60, with a cold northwest wind. It was cold this morning, the 23d, down to 55, and yet there was a sprinkling of bees on the sweet clover and alsike, but by no means as many as there were the day before when the temperature was up to 70; and when it is really hot there is a perfect swarm of bees going back and forth, for the yard is only a few rods away.

Fearing that we had overstocked the home apiary with a whole carload (there were already 150 colonies there) we moved 150 of the strongest to the outyards. Notwithstanding the home yard was apparently overstocked, we found that the outyard bees, when the weather was cold, were getting almost nothing, while the home bees that had this sweet clover were storing some honey.

As explained elsewhere the Texas bees arrived at Medina short of stores. At least half of them had only a dozen cells of honey when they arrived at Medina; and you just ought to have seen the way they jumped into this yellow sweet clover. When we moved the Texas bees to the outyards, away from the yellow sweet clover, they were down to the verge of starvation; while those

left at the home yard kept on storing from the sweet clover in spite of the fact that the temperature was down to 55. It was, therefore, necessary for us to feed at the outyards by a method which we explain elsewhere.

Unreasoning Prejudice against Bees, Cats, Dogs, etc., on the Part of Some Good People

SOME two weeks ago the editor of the *Rural New-Yorker,* Mr. H. W. Collingwood, inclosed a letter from a correspondent complaining somewhat of the attitude of the *Rural* because it recognized the valuable work of the bees in pollinating fruit-trees. This correspondent went on to state that bees were causing blight on his fruit-trees, and that they were a nuisance generally. We prepared a reply showing that, while bees might scatter blight, they do tenfold more good than harm in making more and better fruit, and that the damage they do to trees is not nearly as serious as stated. This reply appeared in the *Rural New-Yorker* for June 12. In acknowledging the receipt of this, Editor Collingwood, in his usual characteristic way, writes:

Dear Mr. Root:—I thank you very much indeed for your letter and for the article, which seems to me a very sensible one. I am glad to get this, as I think it puts it up to our readers just right. I find that people appreciate a good strong discussion of a subject, and want to have all sides of the matter brought out.

For some reason, which I have never been able to understand fully, we have a class of people in this country who have no use whatever for a "bee." Some people, as you probably know, vent a lot of spite on a dog. I know a man who hates a cat on general principles, and every time he goes out hunting he shoots every cat he can find, no matter whom it belongs to. I have another friend who, unhappily, thinks a child is about the worst nuisance that ever came into the world. I have seen him look at children, and I knew perfectly well that he was saying to himself, "Oh for the days of good King Herod!" and so there is no use trying to analyze these pet hatreds or pet abominations. Some men can see nothing about a bee except a very instructive word he carries at the end of his tail. They can appreciate his arguments in that line, and do not want to know anything more about him; and so I am glad to have our friend, the busy bee, have his innings, and I am much obliged to you for sending me to bat with a fair chance of making a base hit or a home run. One of them made a base hit on my little boy the other day, and the boy certainly made a home run for the house. He went back, however, as he now has a hive of his own, and he is getting to be something of a beekeeper.

New York, May 26. H. W. COLLINGWOOD.

Mr. Collingwood strikes upon a point that is worth bringing out—the unreasoning prejudice on the part of some good people against certain useful animals. While we admit that there are useless curs that are a menace and a nuisance to the public generally, there are some dogs that are invaluable. Years ago, when A. I. Root was raising garden truck and running a series of cold-frames and greenhouses, some big and little dogs persisted in walking over these cold-frames and breaking the glass. To him a dog was about as useless a thing as one could have on the premises. He was overrun with rats in spite of steel traps and cats. Much to his chagrin, the children got a little black-and-tan rat terrier; and he was a holy terror to rats. He kept so everlastingly after them day and night that he drove them off the premises; and for three years after his death, not a rat showed up. From that day to this, A. I. R. has had a most wholesome respect for *some* dogs, and particularly for *that* dog. He has always believed in good cats for catching mice.

Some of our friends the fruit-growers have a similar prejudice against bees. Some day they will wake up, like A. I. R., and discover that the very thing they once regarded as an enemy is, after all, one of their best friends.

By the way, if you have never read the *Rural New-Yorker,* you are missing something. Editor Collingwood's editorials sparkle just like the letter above. Moreover, he is a practical farmer himself. If you are interested in soil culture or in being outdoors, get acquainted with the man by taking his paper, and you will be the richer—spiritually as well as financially. There is hardly a journal that *dares* to expose humbugs like the *Rural.* It is an all-around paper, and, what is more, it has been a stanch friend of the bee.

Carniolans Hustlers and Early Risers

IN the carload of bees from Texas there were about a third of them Carniolans. After the bees had been released, the Carniolans were very much in evidence in the sweet-clover patch referred to elsewhere; and, remarkable to relate, notwithstanding there were ten times as many Italians in the yard as of the dark bees, there were as many Carniolans on the sweet clover as of Italians. The next bees that were much in evidence were the dark or leather-colored Italians; while the extra-yellow and the goldens were conspicuous by their absence.

Moreover, in the early morning, when the temperature was down to 60, the Carniolans were the first to go to the fields. Several of us noticed that, even as early as three and four o'clock in the morning, these black bees were going to the fields.

Mr. Wilmon Newell, who furnished the bees, has been breeding some very superior strains of bees, and among them were Carniolans. In fact, he has been conducting some valuable experiments in breeding bees, a report of which was given in a late bulletin from Texas. See GLEANINGS, page 214, March 15. That he got results is shown in the Carniolan strains at least.

Our Carniolans are now placed in outyards by themselves, to prevent cross-breeding with the Italians. We find this particular strain very gentle, and regular hustlers. We have no Carniolan queens—only bees—so we cannot be accused of booming something for the sake of selling.

While we have somewhat opposed these bees on account of their swarming propensities, we are glad to say a good word in favor of any strain of bees that is not afraid of the cold, and that works early and late, even if they do have an inborn propensity to swarm in season and out of season.

The Arrival of the Second Car of Bees in Medina

THE second carload of bees arrived at Medina at 4 P. M. Sunday, June 20. Had they arrived on schedule time they would have reached here sooner by about twelve hours. They started from College Station, Texas, on Tuesday night, June 15, making four days and five nights on the road. The conditions at College Station were very unfavorable. High temperature and prolonged drouth had made it impossible to feed, and in consequence the bees before they started, or at least a good portion of them, were short of stores. The shipper, Mr. Wilmon Newell, asked us whether it would be practicable to feed the bees *en route,* as he found it almost impossible to feed on account of robbing. We advised against it, fearing it might stir up the bees, get them excited, and, being unable to discharge their feces, they would die before they reached Medina. As Mr. Newell, however, found it utterly impossible to feed before starting, on his own responsibility he directed our man to feed on the way. He furnished for the purpose several cans of thick horsemint honey from a locality where foul brood had never been known. With a large spoon or ladle this honey was spread thinly over the wire cloth of the colonies that were short of stores. Not enough was put on at a time to run through. This was done at intervals, and, contrary to what we had feared, colonies so fed came through in nice condition. The only losses were dead bees on the wire cloth in colonies so strong that they died from excessive heat; for be it known that the car started when the temperature was 110 in the shade.

The method of loading the bees will be fully described and illustrated in another issue.

Carelessness in the Matter of Managing Foul Brood; Bees on Shares

WE have complaints from two or three beekeepers who have placed their bees in the hands of Geo. H. Kirkpatrick, of Rapid City, Michigan, to run on shares. It seems that the deals did not prove to be very satisfactory to any of the parties, and now they have complained to GLEANINGS that there has been unfair treatment on the part of the caretaker. After reviewing quite a mass of correspondence we are inclined to believe that Mr. Kirkpatrick, who was fairly successful before foul brood got into his territory, had all kinds of bad luck after the disease got started. At all events, foul brood developed among the bees in his charge, and the disease kept going on from bad to worse, with the result that they nearly all died. Two different parties complain that bees they placed in Mr. Kirkpatrick's charge contracted foul brood, and finally died so that they lost the value of their investment.

It appears that Mr. Kirkpatrick has had a great amount of sickness and death in his family. It also appears, if the testimony of reliable people can be believed, he leaves combs, honey, old hives, and frames scattered over the premises. That he has made an effort to cure foul brood among the bees put in his care, there can be no doubt; but no one can cure that disease and have his combs and hives scattered about in promiscuous heaps, as one of our reliable beekeepers who called on him testified.

One man, Mr. L. C. Woodman, put in the hands of Mr. Kirkpatrick a carload of bees. The former says that the following spring 100 of his colonies had starved in the cellar, notwithstanding in the contract Mr. Kirkpatrick was to feed 25 lbs. of stores to each colony. The expense of this was to be divided equally between them. Foul brood developed later, and things kept going on from bad to worse until all were dead. Mr. W. E. Forbes says he lost 100 colonies placed in Mr. Kirkpatrick's charge under similar circumstances. Still others have made like complaints.

While we do not believe that Mr. Kirkpatrick is dishonest, we cannot advise any one else to furnish him bees to be worked

on shares, in view of the reports that have come. No one can clean out foul brood unless he takes care of his old combs and hives.

Some three years ago Mr. Kirkpatrick had a beautiful home which he bought and paid for from the proceeds of his bees. We saw the place, and greatly admired it. At that time he had the reputation of being a good beekeeper; but in later years it would appear that foul brood, and sickness and death in his family, had materially handicapped him, with the result that he seems to have lost heart and grown careless. While we feel sorry for him, that does not excuse him for letting other people's property placed in his hands go to ruin.

If any one is going to put bees out on shares he ought to make sure that there is no foul brood anywhere in the locality where the bees are to be worked. Another thing that should be taken into consideration is that one who may be able to handle a small number of his own colonies with success may make a complete failure when he attempts to run the business on a larger scale, especially if he attempts to operate another's bees.

How to Feed Bees on the Verge of Starvation, without a Feeder, and do it with a Minimum of Labor

As explained, some of our outyards where we moved colonies that were short of stores were on the verge of starvation. If it would only warm up so the bees could get at the acres and acres of alsike clover, which was in the height of its bloom, no feed would be necessary; but it remained cold, and it is cold yet, June 23, although the Weather Bureau says we shall now have warmer weather. But it no sooner warms up a little than we have several days of cold. The result has been that one day we are expecting swarming as the result of a rush of nectar, and the next day we are expecting starved bees and starved brood. This morning, June 23, the mercury was down to 50. Examination of some of the hives at the outyards the previous night showed that some of the biggest colonies in the Texas shipment did not have half a dozen cells of honey. Something had to be done the next morning, and that right speedily. To see what we could do, we took along a can of very thick honey that we knew to be free from the germs of foul brood. We hunted up an old two-quart tin pail, bent one side of the rim so that it had a mouth or delivery like that of a coffee-pot. We filled this with thick honey, and proceeded to feed. A cold north wind was blowing. An attendant opened a hive, blew some smoke over the top of the frames until he drove the bees down from the tops of the frames, or nearly so. We then took our little pail of honey, and poured a stream about a quarter of an inch in diameter. This stream we trailed lengthwise up and down the top-bars of all the frames. In other words, we made railroad tracks back and forth. These tracks were from a half to three-fourths of an inch wide. Sometimes they spread wide enough to run down between the combs and among the bees. If the colony was strong no harm was done. The work was done quickly; and as the honey was very thick, but little of it ran down between the combs. After feeding one colony we cut off the drip and went to the next hive. In like manner we went through the whole fifty colonies in about thirty minutes. When we got through with our feeding we found we had used a trifle over 50 lbs. of honey. That is to say, we gave each colony one pound of thick waxy honey without the use of a feeder or appliance of any sort save an old tin pail. A tin can of any sort will do just as well provided the rim on one side is made like that of a common coffee-pot beak so as to pour a small stream. When a colony is on the verge of starvation a pound of thick waxy honey is quite sufficient to tide it over until nectar from the fields comes in.

Of course this method of feeding is applicable only where a small amount is needed to tide the bees over until a flow from the fields comes in. In feeding larger quantities, regular feeders, of course, should be used.

When giving food in this way, care should be taken not to pour over the colony enough so that it will run down between the frames on the bottom-board. It might run out at the entrance, and start an uproar of robbing.

Precaution should also be taken to drive the bees down from the tops of the frames. While it would do no great harm to daub the bees with honey or syrup, it is best to avoid it if possible. A bee that has been smeared we do not believe is quite as good a bee after, even if it is thoroughly cleaned by its mates. If one will work carefully he need daub hardly a bee.

If the atmosphere is at all cool, lift the covers from all the hives. If there is a cool wind blowing, and the colony is not strong, the bees will quickly go down between the frames. Now is the time to pour the syrup over the tops of the frames, as explained, and then put on the cover immediately after each pouring.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



JOSEPH J. ANDERSON tried keeping colonies separate with newspaper, and failed, p. 500. Newspaper is not intended to keep separate permanently, but to unite, and for that purpose is a great success, as it no doubt was with him.

I'VE ALWAYS said that bees would put no honey in the super so long as there were empty cells in the brood-chamber. I'll never say it again. June 1 I found brood-chamber after brood-chamber destitute and a little honey in the super. But drawn combs were in the super. I suspect it's still true with only foundation in super.

A NEW MEXICO correspondent last year had 146 swarms from 200 colonies in 38 days, and asks what to do. Get all you can from the books (Fifty Years among the Bees is especially full on the subject), and then study out what best suits your case. If you dequeen a colony, and then in ten days give it a *young* laying queen, it will not swarm. Or, take away its queen, and at the same time drop in, without caging, a virgin less than 24 hours old.

HERE it is the middle of June, clover blooming abundantly, and bees on the point of starvation. Rain, rain, rain, cold and rain—don't know whether there's any honey in the clover; but from the way the bees work the few spells they can fly I suspect there is. But the prospect for a crop is not brilliant. [The same condition prevails here at this writing, June 21. The bees are going to the fields whenever it warms up enough. We may yet get a crop of honey, but it begins to look doubtful. Already the farmers are beginning to cut their alsike, which is our main stay; but fortunately they cannot cut all the alsike along the roadsides, nor are they going to cut down our basswoods—at least not this year. So we are waiting and hoping. This hope is the stronger because experience has taught us that *sometimes* our main honey-flow in the North comes after the first of July. Repeated rains in June, such as we have had this year, renders it not impossible to have the bulk of the honey in that month. —ED.]

"DEQUEENING . . . may be sufficient; but it may be advisable to shake as well as requeen; and it may be necessary to shake again until the disease begins to lose some of its virulence," p. 480. That from the man who got me to dequeen instead of shake! I had experience with both shaking and dequeening, in cases where European foul brood had not begun to lose its virulence, and it would take proof to make me believe that there is any case where it is either necessary or advisable to shake once, let alone twice. In American foul brood, yes; but never in European foul brood. Neither is it necessary always to requeen—never, unless a better queen can be given. Just stop brood-rearing for ten days or so. The bees will do the rest, although it may be necessary sometimes to repeat it. [It is true that we persuaded you to dequeen and requeen when European foul brood broke out in your beeyard. We do not remember whether we advised you not to shake or not. From the investigations we made at the time we were hopeful that requeening alone might be sufficient; and now you think we are inconsistent even to intimate that it may be necessary to shake as well as requeen. The statement in question was not a recommendation of ours, but a synopsis of a bulletin put out by Mr. Morley Pettit. The statement in question was his own and not ours, or, perhaps more exactly, it was an inference from his statements.

We are glad to know that dequeening and requeening were sufficient in your case without shaking. Shaking, and melting the combs, involves a large amount of labor and expense. While the wax secured will practically pay for new foundation, it does not begin to cover the cost of labor in addition nor the loss and interruption to the colony if the operation be performed during the honey-flow. Shaking to cure foul brood, according to our experience, is always a setback to the colony, particularly in late summer or early fall; and as a general rule such a colony will go into winter quarters rather light, and will probably die before spring. It could not well be otherwise, as the loss of all the brood cuts the strength of the colony in two, and the half remaining are old bees that will die off rapidly. If, therefore, dequeening and requeening would suffice it would be a great boon to those who are suffering from European foul brood; but according to reports from the bulletin shaking as well as requeening may be necessary.

Elsewhere in this issue Mr. G. H. Kirkpatrick has tried to cure American foul brood, but has failed; but the evidence goes to show that he has not kept away the source of infection. Possibly some of those who found shaking necessary in addition to requeening are of this type.—ED.]

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



WEEDS AND BEEKEEPING.

The United States Department of Agriculture, Farmers' Bulletin No. 660, entitled "Weeds: How to Control Them," by H. R. Cox, names fifty of the worst weeds in the United States. The dandelion is one of the fifty, but sweet clover is not included.

Among the fifty worst weeds are found the following plants that are of interest to beekeepers: Dandelion, daisy, milkweed, mustard, and thistle. There may be other weeds among the fifty that furnish nectar or pollen, but I am not familiar with them.

* * *

HONEY CONDITIONS.

A very unfavorable season so far is what we have to record. Cold weather, freezes, rain, and cloudy weather have kept the bees from breeding. Most beekeepers are feeding still (June 12), and a lack of pollen has made feeding destitute of satisfactory results. Bees will have to have a good season in July and August or we shall be short in honey this year.

The most disastrous freeze of the season came late in May and ruined the early honey prospects from alfalfa. Sweet clover was set back, and the flow from fruit-bloom and dandelions was stopped.

The cold weather has prevailed throughout the Rocky Mountain region. Montana, Wyoming, Idaho, Utah, and Colorado all are served about alike. The freezing of the alfalfa was very severe in eastern Colorado, and not so serious in the western part of the state.

We have now had our ten inches of rain this season, and the precipitation of three inches above normal.

* * *

The Montana Beekeepers' Association has an energetic secretary in Mr. Percy F. Kolb, of Billings, Montana. The beekeepers of Montana have had such a varied lot of supplies and equipment that it was thought advisable for the association to establish standards; and in order to encourage the use of uniform goods to authorize the secretary to purchase supplies for the members. The secretary has done this, sending out several hundred price lists, and I am informed that over one thousand dollars' worth has been secured for the members on a co-operative basis. The Montana Association will doubtless gain a large membership in this way, and it is hoped that the secretary will receive some pay for his time. The secretary of the average beekeepers' association has a lot of work to do for which nothing but the honor of the office is paid. Montana is a big and generous state. They do things that way. Montana is to be congratulated on having such a secretary, and Mr. Kolb is to be congratulated in having such a loyal membership.

* * *

Many of the alfalfa-fields in eastern Colorado have become infected with the blackstem blight, and the county agriculturists are advising prompt cutting to prevent permanent damage to the plant. The infection takes place where small breaks occur in the epidermis of the stem, due to the freeze; and, unless cut immediately upon detection, will follow the stem to the crown of the plant, which will finally die, leaving a poor stand in the field.

The first indication of this blight is a slight frost damage, all or part of the leaf turning yellow or almost orange. Yellowish, bruised-appearing places will be found on the stem in a few days, these later turning to an olive green and later still to a brownish color having a varnished appearance. The growth of the affected stem stops, and finally becomes black and brittle near the base.

This is, of course, of especial interest to beekeepers who hope to see the advice of the experts followed, as there are usually no frosts after the first cutting, and a healthy growth will be assured for the second crop. The first crop having been so badly frozen and blighted there would be no nectar in the bloom should it appear in the first crop.

* * *

SPREADING BROOD.

I do not wish it understood that I make a general practice of spreading brood; but at the same time it is done with satisfactory results when carried on with other operations.

A number of my outapiaries become honey-bound, and it seems almost impossible to get the colonies to build up. In these cases uncapping a comb of honey at the side of the brood-nest, and putting it either close to the center or close on one side of the brood-nest, does relieve the situation. The place that such a comb is put in the hive depends upon its strength. By uncapping sealed stores, and spreading the brood by inserting these uncapped combs in the

Continued on page 527.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The sad news of the death of Mrs. Acklin has reached me. I feel that I express the thoughts of her many friends when I say that a life that has filled a place worth while has passed. Such a life is not lived in vain. Mrs. Acklin was the editor of this department before the writer took up the work. She has been a recognized authority on bee topics for many years.

* * *

I am very much surprised at the remarks of Mr. Byer in commenting on my third note, page 353, May 1. He says: "Another mystery to me, surely! is it the strain of bees or what?" I am truly astonished that it is such a mystery to Mr. Byer. The appearance of laying workers is the most common way of which I have knowledge for colonies to degenerate, while drone-laying queens are a very rare thing with me. I do not believe I have had experience with more than a dozen careers.

Fertile-worker colonies are the natural sequence of the loss of queens in winter and early spring. Breeding during the winter months is at its lowest ebb. It is no uncommon occurrence to find a colony without brood at times. The failure of a queen to lay during this period causes no alarm among the hive force since there is no incentive for a queen to lay. Naturally those failing during this period are allowed to reach a state of exhaustion where it is impossible for them to lay. They die with the colony hopelessly queenless, since there are no eggs from which another may be reared. The colony remains in this condition until, as a last resort, a worker is chosen to perform the functions of a queen.

In the same issue, page 433, the editor comments on the situation as varying so widely here from what it is with Mr. Byer. In this he seems to have in mind that Mr. Byer is astonished that so many two-year-old queens disappear, while I take it that Mr. Byer is concerned that so many of my colonies have fertile workers. I have passed the point where I am concerned about the loss of a colony from the fact of its becoming a fertile-worker colony. I expect a certain percentage of them to have fertile workers where they are not annually supplied with a young queen. The loss with me from this cause where requeening has not been practiced reaches not less than ten per cent annually. With young queens the loss is a negligible quantity. E. R. Root is entirely correct, however, when he says a queen's life in this climate is much shorter than it would be in the East where the queen is inactive during the winter months. But his surmise that I may have a sprinkling of Cyprian or Holy Land bees is wrong.

* * *

I wonder if it would be out of order if I should arise to make a few remarks about the much-discussed question of spreading brood, now occupying the minds of the editor and the department correspondents. Under certain conditions I am a firm believer in brood-spreading, but only under conditions prevailing with individual colonies do I practice it. However, it is profitable to observe the conditions of every colony to ascertain where it is safe to spread. To my mind there is gain in judicious spreading of brood in early spring, for an extra comb of brood early is worth much to the future of the colony.

But by the term "spreading" I have in mind not only the parting of combs to insert an empty one, but using other means to the same end. In our climate, conditions may be somewhat different from those in the East; yet my long experience there, and nearly as long in this state, has not shown me where a bee here differs from a bee in the East, save by her surroundings. Here in early spring I have seen two solid combs of pollen in a hive, one on either side of two to four combs of brood. This condition is deplorable from the fact that the pollen has checked the work of the queen. It must be removed or time lost waiting for sufficient bees to hatch to cover combs outside of the pollen-bed before laying can continue. In this case the pollen combs can be set out and an empty comb placed next to the brood, which is equivalent to inserting a comb between combs of brood. It does not endanger the brood in any manner.

Often where the side of a comb next to the brood-nest is pollen-bound, aid may be given immediately by simply turning the pollen side away from the brood-nest. When a colony has sufficient bees to cover more combs than those already containing brood, it is always safe to insert an extra comb in the brood-nest. The value of spreading brood is too great to discourage, and yet too risky to practice in a haphazard manner.

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Thank you, Mr. Chadwick.

* * *

I was glad to see in E. S. Miles' article, page 462, June 1, that I am not the only one who gets nervous from the fear of squeezing the queen too hard, or otherwise injuring her when clipping. I shake like a foolish aspen leaf when I get started on that task.

* * *

Our first attempt to use the Fowls adaptation of the Alexander method of increase seems to have been successful. On May 9, finding queen-cells with well-advanced larvæ, we raised the entire brood-chamber to fourth place up, leaving one frame of brood and the queen below. The bees attacked the nine full sheets of foundation with energy, and in a week had several frames of drawn comb. On May 16 we removed the queenless brood from the fourth story to a new location, and on June 2 had two frames of eggs and young larvæ.

* * *

Among the "Interesting People" in the June *American Magazine* is "Honest Mose," Idaho's new governor, Moses Alexander. His is an interesting story, and, according to the account, he gives promise of giving the people of Idaho a good, clean, economical reform administration. But, alas that he should say, mentioning the needless expense that he intends to cut out, "It does not appeal to me to have such officers as bee inspectors. The people have certainly been stung enough already"! Surely some of Idaho's enthusiastic beekeepers will be able to show Governor Alexander the real economy of maintaining the office.

* * *

That dry April I commented on last month has been labeled by the Weather Bureau the driest in forty years. Headed by a dry cold March, it was tagged by a dry May—that is, till about the middle of the month. The clover came unusually early, hurried into an early maturity by the dry weather, we heard it explained, while the bees, retarded by the long-lingering winter, had been late in building up. That is not a happy combination. Then in mid-May, with clover in bloom, and a pretty fair force of bees, it began to rain, and "Sunny Tennessee" seemed as much a myth as Mr. Chadwick described "Sunny California" to have been. For two or three weeks there was rain, cloudy weather, high winds, and the bees could not work. Several dark windy days I watched the few adventurous ones battling with the winds. It was right in their faces as they came back to their hives, and often sudden gusts forced them to make several attempts to alight at the entrance.

I kept wondering what the bees do when they are shut in that way for a week or more in the summer; but the weather that kept them in their hives kept me out. What do they do?

The locust flow was excellent, and the poplar good, though our own bees get only a little of the former, and, so far as we know, none of the latter. White clover is our main stay, and it is pretty fair. The rains may have helped it, though they came too late to give full value of good effect.

* * *

OF INTEREST TO WOMEN BEEKEEPERS.

Lifting is certainly the greatest problem for us. So far, in our own little yard, we have managed to do the hives with the heavy supers on either Saturday afternoon or Sunday morning, when Mr. Allen is here; but that is not always convenient, and we realize that we must work it out some other way, if I am to do the actual work, and our apiary increases as we wish it to do. Of course, there are the shallow supers to fall back on, though they mean more expense and more labor of putting frames together, wiring, putting in foundation, etc. I suppose we shall resort to them another year, however, if we don't have an inspiration in the meantime. Personally, I am greatly interested in the various articles that have appeared on the Long Idea hive, and I wish I knew a little more about the construction and manipulation of the one pictured on page 147, Feb. 15, used by Victor Vargas Gamallo, Professor of Beekeeping at Havana, Cuba. It seems as though such a hive as that might be manufactured as cheaply as the standard hive, as it does not require the large boards mentioned by the editor in that article, as a cost-objection against the Long Idea hive developed and used by Mr. Poppleton. I for one should like to be able to get into the brood-chamber without lifting off any supers. [We have an article from Mr. Poppleton going into the whole matter quite fully. This will appear in an early issue.—Ed.]

Another question for us is, "Shall we wear gloves?" I have persistently declined, claiming that my hands could become hardened to stings as well as any other; but Mr. Allen contests that, as a woman's hands are less weathered and toughened than those of men doing out-of-door work, the hardening process comes too high, and he urges gloves. But I am sure the swelling is much less now than formerly, and I scarcely notice three or four stings, nor even six or seven. (We have one or two rather unmannered colonies that nearly always punish us.) So I have rejoiced in my increasing immunity, and scorned further protection than a veil. But now, like Mr. Chadwick (or, perhaps, more like Mrs. Chadwick), I view the sting proposition at a slightly different angle, and regret to admit I am still nervous from a recent experience. It happened when Mr. Allen opened one of the hives where I require help with the heavy super. I joined him just as he turned back to the hive, after setting the super off. The smoker was in my left hand; and as I was about to use it, but before I had a chance to do that or anything else, the bees jumped on me. Only three or four tackled the hand; but a small dark cloud dropped straight to my black-hosed ankles. Forty stings is a conservative estimate. I went to the house, replaced my low shoes with high ones, and came back intending to work; but by that time I was sick and dizzy. Soon I was in bed, my face flaming red, with the color extending well over the body. Strangest of all, though I scarcely felt the stings by that time, I was suffering almost unbearable external pain, and soon began shaking with cold. Mr. Allen called a physician; but by the time he arrived (perhaps half an hour after the attack) the worst was over. In a few hours I was up, and that evening I took a long walk. But I am seriously considering a bee-proof uniform. The one pictured by the clever cartoonist of the Backlot Buzzer, June 1, is rather an inspiration.

The interesting feature of the occurrence was that this was the colony I had boasted of as being particularly gentle. But, you see, it was during the run of bad weather mentioned above, when bees are notoriously ill-natured (and justifiably so, perhaps), though we rather thought that day was near enough fair to open the hive to look for queen-cells. It had been eight days since the last inspection; and to wait another week for Mr. Allen's help might have been too long for good results.

* * *

EAGERNESS LINKED WITH CONTENT.

We love you, dear bees, for your quiet content;
You murmur and hum through the labor-filled hours
At peace with the way the blown grasses are bent
And the touch of the sun on the flowers.
In rhythmical time, like a fairyland chime,
Recurrent and smooth as melodious rhyme,
Your spirit croons calmness to ours.

And, oh how we love you, brave bees, for your flight!
Though gauzy your wings for such journeyings long,
You flash out and plunge into acres of light,
Exultant in swiftness and song.
A courage that sings—unhesitant wings!
You passionate, quivering, unafraid things,
What makes you so eager and strong?

If we all your simple contentment might learn
When straining hours clamor and press on us so,
And mount with your ardor where far visions yearn
When wearisome hours bring us low,
Awake and athrill, life's deep cup we should fill
With splendid achievement and quiet-wrought will,
Serenity, purpose, and glow.

BEEKEEPING AMONG THE ROCKIES — Continued from page 524

brood-nest, will often reveal the limits of the queens to the bees, and they will supersede her. In other cases these combs are filled with eggs and brood very quickly. Perhaps I would do just as well to uncap the combs of honey and leave them at the side of the cluster, but I do not think so.

The danger from spreading the brood in this way is in giving the bees more space than they can keep warm. This must be guarded against. Then it is useless to spread the brood if the bees do not very soon make the brood-nest one compact mass of eggs and brood.

Perhaps my method is not so much the spreading of brood as making the bees remove the honey from crowded combs and fill them with brood.

Many successful beekeepers practice methods that are of doubtful value. They get a crop of honey in spite of them, not because of them. The average beekeeper does not have time to test thoroughly the value of all the practices he follows. I may be mistaken in my fancied results from disturbing the brood-nest, but I don't think so. There are things that do stir colonies to greater activity, and I believe this is one of them. The practice of spreading the brood throughout a whole apiary I do not follow; but the individual needs of each colony are looked after.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



That statement of mine in the June 1st issue, concerning our early spring in Ontario, needs some revision at this date, June 11. While April was unusually warm, and vegetation came on in proportion to the weather, May proved to be one of the most backward on record, with cool days and some frosty nights; and as a grand *finale* to the unusual weather, a heavy frost on the night of May 26 killed tender vegetables and injured fruit in some places. At present we are in need of rain; and unless we get showers soon, clover will be very short. Bees are in fair condition, even if there have been but few days for gathering honey from spring sources of nectar, which all goes to prove once more that bees that have winterd well, and have lots of good stores to draw on, will stand a great lot of unfavorable weather conditions and yet build up for the honey-flow.

* * *

J. E. Crane, page 394, May 15, speaks of a weed called paintbrush, or hawkweed, that is such a nuisance in Vermont. North of Brockville, in Leeds Co., where we had a large apiary for three years, this pest is established firmly in the thin rocky and sandy soil that is common there. The plant seems to be good for nothing; but it will crowd out everything else unless, as he states, it is found that sweet clover will kill it. Judging from what I saw in Leeds Co. I formed the opinion that it would be only a pest in localities where pastures were left for years at a time; but it may be that it would establish itself in good land too. Personally I do not know the botanical name of the pest; but I remember the farmers calling it paintbrush, and all expressing a fear that it was going to ruin all their pasture lands.

* * *

Speaking of long confinements for bees during the winter, friend Doolittle thinks, page 441, June 1, that bees cannot be kept in for more than five months on summer stands and be in good condition for the summer's work. I suspect that would prove right in the majority of cases; but there are exceptions to all rules. When I wrote up the account of my trip to the yard wintering on aster honey, I did not care to be too sure as to how the colonies would turn out at that early date, April 7, and consequently kept on the safe side in saying how they had wintered. I am glad to say that they were much better than I stated in the May 15th issue. I have just returned from the yard a month later than above date, and, aside from some queenless colonies, not a single colony died, and we have no weak stocks in yard. Nearly all are fully occupying two full-depth stories, and some have three, with a clover-flow still ten days away. These bees did not have a flight from the last week in October till April 7, and the temperature was as low as 40 below zero. Another year might tell a different tale under like conditions; but as a rule we expect at least four months without a fly at that location, and with good stores we do no worrying.

* * *

That editorial regarding laying workers, page 433, June 1, does not clear up matters at all so far as I am concerned. Mr. Chadwick's queens play out and so do mine. So far all is plain sailing. Chadwick finds colonies that have lost their queens, with the majority having laying workers, and here is where the difference comes in. At the York Co. yards, owing to a total failure of crop last year, no requeening was done by me; and examination this spring shows that none to speak of was done by the bees themselves. As a result, although we had hardly any actual winter loss, yet fully 10 per cent (same as friend Chadwick's) are either queenless or might as well be so far as their usefulness for this year's crop is concerned. But in every case the colony is either hopelessly queenless with but a few bees left, has a young virgin that never was mated, or else has the old clipped queen laying a few drone eggs. Long seasons or many of them does not explain the difference, and it surely must be that Mr. Chadwick has a sprinkling of Holy Land or Cyprian blood as the editor suggests. I have been told by men who have handled these breeds that they are bad for developing laying workers. [Notice that Mr. Chadwick, in this issue, says he has no Holy Land bees nor Cyprians. Is it not possible that even pure Italians would vary greatly in this respect?—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



WORKING FOR EXTRACTED HONEY.

"You are telling us all the time how to work for section honey. Can't you tell us something about the best way of working for extracted honey?"

In the late seventies and early eighties I produced much extracted honey, selling it for 15 to 20 cts. per pound to my neighbors, and I considered it profitable; but when the price went down, from various reasons, to 7 to 9 cents I concluded that section honey was more profitable. As to my way of working in those years, I find in an old diary some notes which I jotted down, giving the best way of working to secure a good yield, or one-third more pounds than I could of section honey from colonies of approximately the same strength. I have never fully carried out these plans, but I believe them worth trying.

At the beginning of fruit-bloom examine all colonies. From those that have brood in from seven to eight frames, and as many spaces well filled with bees, take one frame of brood from the brood-nest, selecting the one containing the most nearly maturing brood. Shake the bees off in front of the hive, and put a frame containing all worker-comb in the middle of the brood-nest, in place of the comb of brood taken out. Now put on a queen-excluding honey-board, leaving it on till the close of the season. The reason for taking this frame of brood from the brood-nest is that I find the queen will lay much faster in the middle of the brood-nest at this time of the year than she will in the outside combs. This being the case, right in the middle of the brood-nest is where we want the queen doing her work. What is wanted at this time of the year, or up to 30 days before our main honey-flow comes, is all the brood and young bees we can get. The frame of brood removed is put in an extracting-super directly over the brood-nest, and the super filled on each side with empty combs, or those having only a little honey in them. The bees go right to work in this upper story. If the weather is warm, and a little honey is coming in, I can, in a week or so, take another frame of brood from this same colony. This is put in the extracting-super beside the first comb of brood, taking out a comb that was beside the first frame of brood to give it place. As the bees have cleaned the combs next to the frame of brood first put in, and put a little new honey in them, such combs are just right to put in the brood-nest in place of the brood removed.

Just a word of caution, especially to beginners: Be a little careful not to take too much brood early in the season from the brood-nest lest the queen and bees become discouraged. Our object is to stimulate the queen to lay to her fullest capacity.

In another week, take another frame from the brood-nest and exchange it for another of the cleaned combs from the super. Five days later take still another frame of brood from the brood-nest, but this time put it in another super and set it under the first, or over the brood-nest, destroying any queen-cells that may have been started in the first super given. This system of management is to be followed just as long as the bees emerging from the extra brood gained will be of profit to me working on the clover and basswood bloom. There is a certain time during the life of a colony, each season, when we can build it up faster than at any other time during the season, and that the bees from such building-up will be of double the profit to us that they would at any other time. With a ten-frame Langstroth hive worked in this way the brood in the brood-chamber and that in the supers may amount to 14 full frames, which, barring accidents, will put 75,000 field workers on the stage of action just as the flow of nectar from basswood bloom reaches its height. In 1877 such a colony gave me 22 lbs. of extracted honey for three consecutive days, and the result of the season from that colony was 566 lbs., enough remaining in the hive for successful wintering. Some colonies worked in this way gave one-third better results than did other colonies of equal strength that were allowed to take their own course. If I wished to run two or three colonies for comb honey, 15 or 20 days before the end of the honey harvest I took two or three of these large colonies and removed the two or three extracting-supers, and in their places put on three section supers. The bees will fill three about as soon as they will one. In less than an hour these section supers will be filled with bees and they go right to work. In this way I could take nearly as much section honey (even though late in the season) as I could if the colony had been worked for section honey from the beginning of the honey-flow from clover. The sections are so nicely filled that nearly all of them will class as fancy.

GENERAL CORRESPONDENCE

NON-SEPARATORED HONEY—A CHALLENGE

BY ALLEN LATHAM

On page 616, August 15, 1914, the editor uses rather severe language regarding honey produced without the use of separators. Having produced comb honey after that manner for thirty years I wish to discuss the question.

If, *per se,* it were impossible to produce good marketable comb honey without the use of separators, the editor's position would be unassailable. If, on the other hand, good marketable sections can be produced without the use of separators, then the question should be debated on this issue —which system can be made to yield the better average results?

After an exhaustive use of separators, both plain and fence, I have practically discarded the use of separators as separators. I still use fence separators between the outer rows of sections and the super sides.

The one argument against the non-use of separators is divided into—

(*a*) Sections lack uniformity of weight.

(*b*) Sections cannot be crated on account of bulging combs.

As for (*a*) I state without hesitation that there is absolutely no truth in that notion. I have weighed thousands of sections from both separatored and non-separatored supers, and I can declare with certainty that there is as much variation in weight in the sections of one sort as in those of the other. Variation in weight is dependent upon other factors—the character of the honey-flow and the strain of bees. Only in the case of weak colonies can there be variation from other than those two factors, and such colonies should never be used in the production of comb honey. With such colonies the bees will work in only a few sections at a time, and will bulge the combs as they advance from section to section.

In the case of (*b*) I will admit that there will be more sections of non-separatored honey difficult to crate than there will be of these produced with separators, but far fewer than most people are inclined to believe. In my own case the bulging sections are about offset by the leaky sections due to the bees fastening the combs to the separators. Here again the strain of bees is the controlling factor. One can as easily breed out the tendency to bulge combs as he can the tendency to fasten combs to separators.

The difficulty with slightly bulging combs is not felt when cartons are used. All comb honey should be cartoned. When not cartoned it is exposed to the dust and germ-laden atmosphere of the grocery. We owe it to the consumer to carton our comb honey. All cartons should allow about one thirty-second of an inch beeway for easy withdrawal of section, and this is ample allowance for better than 99 per cent of non-separatored honey. At times the slightly bulging comb will suffer some pressure. in which case there will be a patch of watery cappings, but seldom any leakage. There will, in fact, be far less leakage than will result from the broken cappings due to burr-combs in separatored honey. Right here I should like to say that I have no use for a carton which does not completely cover the section. I regret the encouragement that the bottomless-topless carton has received of late. It is a poor makeshift.

Arguments for the production of non-separatored honey are more than two:

(*a*) It is less labor to prepare supers.

(*b*) It is less labor to care for the product.

(*c*) Bees more readily enter the supers.

(*d*) Swarming is greatly lessened.

(*e*) Honey is of better quality.

(*f*) More sections can be put in a super.

(*g*) A bigger crop can be produced.

(*h*) Better for business.

All will, without debate, concede (*a*) and (*b*), and will readily agree that, if marketable comb honey can be produced without the use of separators, then the labor item alone settles the question. I think also that all will concede without argument that bees more readily enter a super of sections where there are no separators. A properly prepared super, put on at the right time, will do more than any other thing to keep down the percentage of swarming. Dismissing, then, the first four points in favor of non-separatored honey I pass to (*e*).

It will surprise many that the claim should be made that better honey can be produced without than with separators. It is actually true, and upon two counts. Non-separatored honey is better cured, and, as a rule, less waxy. The concentration of

work in one small apartment tends to cause the deposition of an excess of wax. This may account for the presence of burr-combs where separators are used. Foundation is not drawn out so thin where separators are used, and bees with wax scales do not find their way into another apartment so readily as they would to an adjacent comb. The honey is better cured in the non-separatored super because there is more freedom for ventilation and the area of work is greater.

The next point (*f*) is worth careful consideration. Twenty-eight seven-to-the-foot beeway sections can be put where twenty-four separatored sections would go, and thirty-two sections 1½ inches wide can be put into the same space. It will thus be seen that in a large apiary there will be 15 to 30 per cent fewer supers used to produce the same number of sections than if separators be used.

As it is my experience that a colony will complete a 28 or a 32 section super without separators in about the same time that it will a super of 24 sections where separators are used, it will be seen that from 15 to 30 per cent more crop will be produced if separators are not used.

It is better for business for this reason: Probably the chief thing that keeps the old "manufactured comb honey" canard alive is separatored honey. The casual observer will not note the slight difference in the sections of a fancy lot of separatored honey, and will readily think that it must have been produced by machinery. The flat board-like finish stamps the honey as artificial. Non-separatored honey, with its more or less wavy comb surface, is so obviously a natural product that no suspicion is aroused.

Such is my confidence in non-separatored honey that I challenge the editor as follows: I will this season select a super of comb honey produced without separators, and send it as it came from the hive to Dr. Miller. The editor can do the same with a super of separatored honey. Dr. Miller can pass judgment upon these two supers upon two counts only—crating possibility of each, and uniformity of weight of the individual sections. Color, flavor, etc., are not to count at all. These two supers can then be sent to some orphanage or old folks' home, or a hospital, and the loser will prepay the charges.

Each super must be sent just as it came from the hive without sections being removed before the super reaches the judge. In case the season is a failure with either of us, then the challenge is to be declared off for the season.

Norwichtown, Ct.

[There is one element that enters into this controversy that you have not specifically mentioned; and that is, the man. Our argument as given on page 616, Aug. 1, 1914, was based on the kind of comb honey that had come from the average beekeeper who had tried to get along without separators. On that point it was not a question of theory but of actual fact. So far as we know, practically every honey-buyer in the country has concluded that non-separatored honey is a nuisance, because there is not one man in a thousand who can produce honey in this way so that it can be marketed either in shipping-cases or cartons.

Our correspondent is an expert beekeeper. We venture to say that in the contest that he proposes he might win out; and that brings up the question: We should like to have him tell specifically how he can produce good comb honey without separators, and show us a picture, or several of them, showing a comb-honey super. Even after he tells us *how* he does it, we venture the assertion that most persons will make a bungle of the job, and the resulting comb honey will be anything but fit for market. However, we are open to conviction, and, like the proverbial man from Missouri, we are willing to be "shown."

In regard to his argument for the production of non-separatored honey, we will concede without argument points (*a*), (*c*), (*d*), (*e*), (*f*), (*g*). Then there remain (*b*) and (*h*). If Mr. Latham is on the job of producing a product, we might concede (*b*); and if others can do as well as he does we will concede (*h*). After all, the whole question resolves itself down to the man and the method; but we put more emphasis on the former than on the latter. We shall await with interest Mr. Latham's article describing his method.—Ed.]

HONEY AS FILLER FOR CHOCOLATE CANDY

BY EDWARD HASSINGER

By cutting comb honey into cubes about an inch in each dimension, letting them drain on wire screen, and then coating them with chocolate, just as other candies are made, one will have something that, in my opinion, is equal to the finest candy made.



Partial view of the apiary of Edward Hassinger, Greenville, Wis.

Granulated comb honey is the best for this purpose. I suppose extracted honey granulated can be used in the same way. With the ungranulated comb honey I have not succeeded in getting the chocolate, mixed with powdered sugar, to get hard enough for commercial purposes—perhaps because I did not give the comb honey time enough to drain dry. I suppose a professional candy-maker could get it just right. I have eaten chocolate drops with the inside filled with various liquids. I am sure extracted honey could be used in the same way. Well, just figure it out yourself. The possibilities are great in this honey-candy business.

PAINTING FOUNDATION WITH BEESWAX.

Arthur C. Miller has a nice row of drone-cells on the bottom of the comb shown on page 372, May 15, 1914. I have my foundation made to order, and have it made to fit the frame less one-sixteenth of an inch from each end-bar, and three-sixteenths of an inch from the bottom-bars. With the most perfectly wired frames there will be some sagging, or perhaps the foundation stretches a little below the bottom wire. Anyhow, a trifle more than ⅛ inch space between the foundation and bottom-bar gives me the most nearly perfect all-worker combs, including the bottom row of cells. I use only the medium-brood grade of foundation. If this is painted with plenty of beeswax all around the edges the bees will use some of this wax, and fasten the foundation to the frame all around, before they draw out the foundation into comb, providing, of course, the combs are drawn in the supers.

Your paint-brush for wax will work about ten per cent better if you will take two narrow strips of wood, a little longer than your brush is wide, and nail these together through the half of the brush, about in the center. At the same time, spread out the hair so your brush will be about one inch wider than it was before, and the hair of the brush will be all in a narrow straight line. This soon forms into a curve on the side that you brush the surplus wax off into your dish. Then use the opposite side of the brush against the curve for your first stroke or two on the foundation, and reverse the brush. With some practice you should be able to paint foundation without closing a single cell with wax, providing you have the wax at the right temperature. This you can learn only by experience.

Greenville, Wis.

BEEKEEPING IN THE BLUE RIDGE MOUNTAINS

BY J. J. WILDER

On account of poor transportation facilities beekeeping along the great Blue Ridge section of our country has developed slowly, and it is a great pity that such is the case, as it is so rich in honey resources, and much nearer our very best honey markets in the South. I have been along this great ridge of mountains for several hundred miles; and while much of it is very remote so far as civilization is concerned, yet I was somewhat surprised to find that our industry had not advanced any more than it had. As a rule this great and almost unbroken forest is full of bees, and the natives and visitors passing through this section never cut all the bee-trees, as they find they are so numerous. I have taken the lead in many bee-tree cuttings while spending the summers up there, and I have never seen bees in the forest in such good condition, such large swarms, and so much surplus stored. The honey in point of quality cannot be excelled.

Notwithstanding the poor transportation facilities, our industry has a great future there as soon as modern hives,conveniences, and methods are employed. In this way a few are becoming interested,and some have bought modern hives and are giving them a trial. I have seen only a few, and I never saw better - filled sections and supers. But log gums stand at nearly every mountaineer's home, and the illustration here shows an "ideal" apiary which consisted of over 100 colonies, all in hollow chestnut log gums, some very large and some very small, and all with large "heads" and heavy rocks on top.

This apiary is one of those owned and operated by the Lamb Brothers, who make beekeeping in this way their main line of business. I saw some of their other yards, but was unable to get good pictures of them. It was only after much climbing up a very steep mountain that I was able to get a portion of this one, which was on a knob near the top of the mountain. The other wing extended around on the opposite side of it, with the honey-house and a great spring in the center. Where they got the idea of the honey-house I don't know unless an entirely separate place for the packing and keeping of it naturally suggested itself.

Not being able to see the owners I learned through their wives that they realized annually more than $1.25 worth of honey per colony, which was hauled to distant markets in ox-wagons.

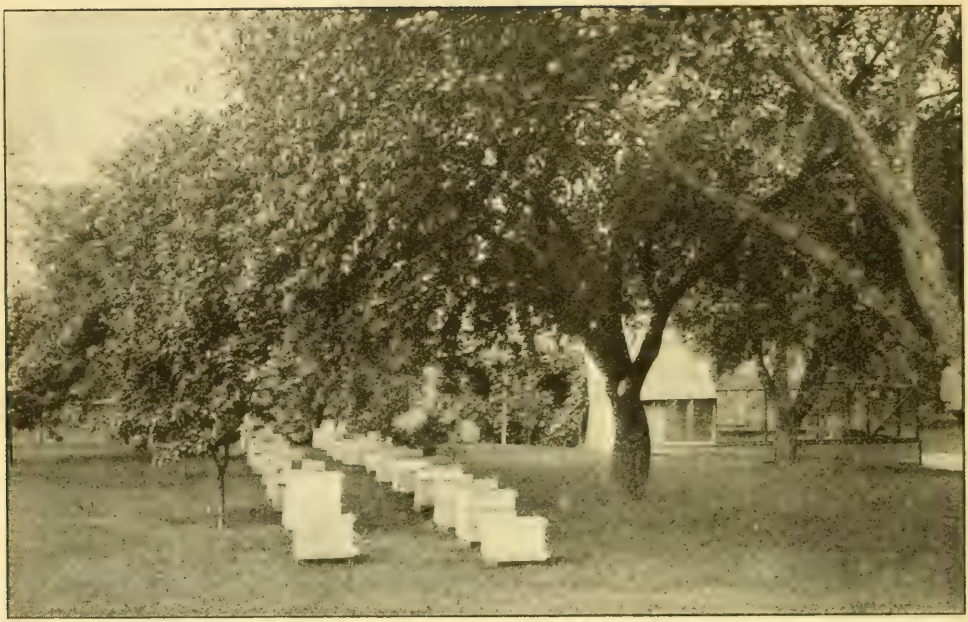
It will be seen that there is no natural shade for the bees, and that all about the hives is perfectly clean. They claim that shade is detrimental to the bees in that cool climate, and for best results they needed all the sunshine they could get. I asked if they had ever tried the "yellow" bees. They remarked that they had, but not with good results, as they swarmed too much, and the honey they made was too thin.



The climate in the mountains is so cool that shade is not only unnecessary but detrimental.

The strangest thing with me about the honey in these cold mountains is that it is always cool, even during the time it is being made, and the thin nectar will drop freely from the comb as it is being handled. The temperature in the brood-nest is very low, and hardly noticeable by the hands.

In fact, I don't see how bees even exist in trees down in the steep ravines under cool overhanging rocks where the sun never strikes them, winter or summer. Yet in



I take pride in seeing how neat I can keep the yard.

such places I have cut rich trees and obtained over 100 pounds of honey, and it is so thick and rich in flavor as to excel any I can find elsewhere in these qualities. The fault is overcome here naturally that we have to contend with in our extreme southern section where it lacks a body. For years I have been "pulling" my hives open in view of more ventilation. Plenty of fresh cool air through the hives is the very best thing I can do toward the betterment of the honey. Had I not learned this by actual experience, the above would substantiate the fact that bees need air and not heat in a closed hive.

Cordele, Ga.

A FEW BEES AT THE CITY'S EDGE

BY H. E. HESSLER

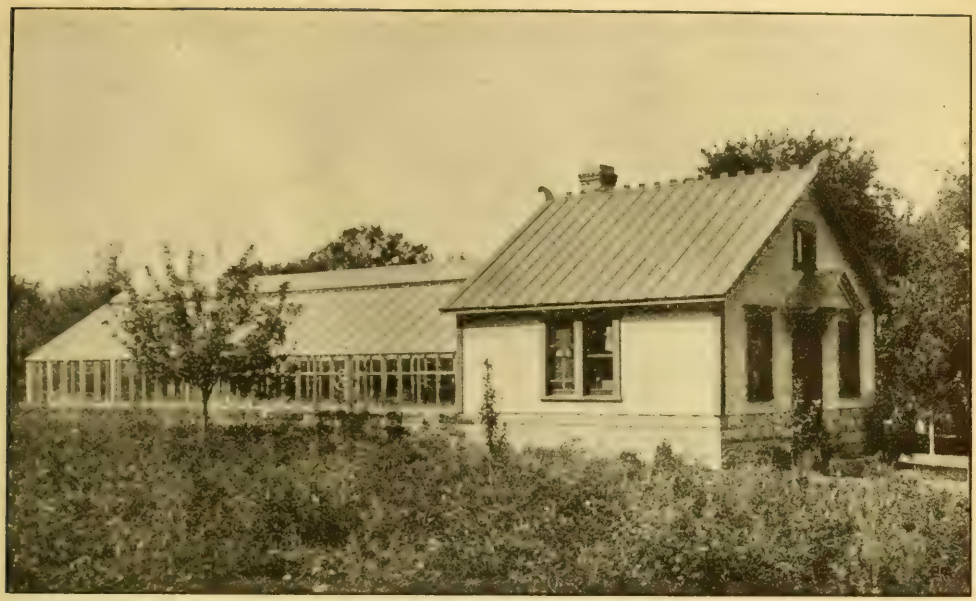
Out of my 61 years I have kept bees 53 years. I believe that I was almost the first person in Madison Co., N. Y., although quite young, to purchase a Langstroth movable-frame beehive. I have never been in the bee business to make a living, but have always kept bees, and by some have been called a bee-fool. I would rather be called a bee-fool than some other kind of fool.

I have kept as many as 100 colonies and a little more. For the past 37 years I have been in the hardware and stove business at my present location, but always hung on to the bees. At one time I had thirty-five colonies on the roof of my four-story building where I am now doing business, and produced good crops of honey.

I did not dare to do too much extracting on account of being close to three churches, and, in fact, in a well-settled part of the city. I have kept bees on city lots and had some little trouble now and then, but never anything serious. Generally the present of a little honey and good words settled up the matter. In a few cases neighbors who were very much against bees became interested and became beekeepers themselves.

At the present time I own a farm of about twenty-two acres, partly in the city and partly outside—that is, the city line runs through the place, which is known as Shady Side Farm. Here I have a very good place for the bees. I am not in it very heavily. I run about fifty colonies and take pride in seeing how neat and up-to-date I can keep the yard. It is mowed twice a week, and the lawn is as smooth as velvet.

The bees do not do quite as well, I think, as they would in poorer circumstances. I believe the bees realize that the master does



Not far away is the greenhouse.

not need their services. I am positively sure that this was the case last year, for in all my experience in the beekeeping business, last year I think was one of the poorest in this section, for gathering honey, that I ever saw, although I secured some comb honey, and put my bees into winter quarters in pretty good condition without feeding. Some of the beekeepers in this section did not do as well.

I use ten-frame double-walled hives. This present beeyard is directly opposite a large cemetery. There are a great many people passing within a few rods—thousands of them. In fact, it is almost the same as being in the city—arc lights, sidewalks, paved streets, etc. Many come into the yard and look at the bees, very often going nearer than they should with children. They go in past my beeyard, and within a few feet is my greenhouse where we sell flowers. I am yet to have a single complaint. My bees are thoroughbred Italians, but each one carries a sting just the same.

Syracuse, N. Y.

SOME INCONVENIENCES IN A BEEKEEPER'S PARADISE

BY S. M. CAMPBELL

This is the beeman's paradise, but, of course, there is always some "bitter mixed with the sweet." We can go out in a big orange-orchard and look across waving fields of green leaves and ripe oranges and see trees that have five or six bushels of golden fruit. Just above them on the mountain-side we can see pure white snow. Early in the morning, when the sunlight makes this glisten and sparkle, and the oranges gleam with gold, it is indeed a beautiful sight.

When the orange-trees are in blossom one can shake the trees, and the "honey" will come down just like a shower of rain. It is not honey, of course, but nectar as thin as water, for it takes about five gallons of the raw nectar to make one gallon of ripe honey. The bees evaporate the honey out of it and make it thick and delicious.

There are about 30,000 colonies of bees in this county, and the output is about ninety carloads of honey yearly, nearly all of which is shipped to eastern markets. Ventura County is mountainous, as, in fact, is all of this part of the state. The mountains vary in height from small hills up to mountains thousands of feet in height—some of them ten or twelve thousand feet high.

We had quite a trip last summer to one of the outyards about fifteen miles up in the mountains. A party of us started one morning about nine o'clock. Our "boss,"

Mr. R. M. Spencer, was with us on that trip. The only way one can get to this yard is on horseback, so horseback we went, and it was the hardest trip I have ever taken, to say nothing of the dangerous experience. There had been 23 inches of rain, and all signs of the trail had been destroyed. We had to wind our way up a river over big rocks that lay in great piles, some of them as large as a dwelling - house. We were getting along nicely, and had gone about six miles, when suddenly, without the slightest warning, our horses whirled around. Just in front was a rattlesnake six feet long. Mr. Spencer was in the lead; and when his horse whirled the saddle turned, and he was thrown to the ground squarely on top of the snake. He probably owes his life to the fact that the snake was uncoiled, and was probably as badly scared as the members of our party. Mr. Spencer was sure "on top" that time. We killed the rattler, and went on up between the mountains over some places that were so steep that we had to get off and lead the horses.



[illegible] red clover; there was also common sweet clover in the same field. After spading up around the plant he threw some grass and weeds around it, as you will notice. See page 558.

We finally reached our destination and found the bees in bad condition and the hives scattered all over the yard. A black bear had been there and had destroyed about 30 colonies. Apparently the bees had stung him, and he had slapped the hives to pieces in a number of instances. We straightened up the hives that were left, stayed all night, and started for home the next morning.

On the way home Mr. Spencer was again unfortunate. Crossing a bare steep rock his horse slipped and went down, and he was thrown into a hole with the horse on top of him. We rolled the horse out and finally rescued our boss. We had some trouble, believe me, but reached home at length, and the boss is here yet.

At another time we started for this yard with three days' provisions of canned goods. After a tedious ride we finally reached the yard and found there the same old story. There had been another bear, and 54 of the colonies were destroyed. About two o'clock that day it began to rain. We were rained in for several days, and we had to cut our bill of fare down to two meals a day, and these, of course, were very small in order to make the food last. You may be sure that we cut those slices of bread very thin.

The cabin was in a safe place, however, and there was about 400 pounds of honey



Three leaves of the common sweet clover and also three from the new plant pictured on the preceding pag . These leaves are shown about three-fourths life size. See if you have any sweet clover growing in your vicinity with leaves as large as those on this new plant. See page 558.

which we decided to melt up and have it ready to feed the bees when the storm was over. The honey was granulated, and we had a time of it. This was good "man feed," too; but one gets tired of honey only, on a long stretch.

The empty cans had been thrown outside, and during the night we heard them rolling around. The next morning the cans were scattered all over everywhere, and it was plain to see that a bear had been there again. Bears like honey too.

It was five days before we could cross the creek, and then we had to cross about twenty times.

Nordhoff, Cal.

STEEL STAYS FOR SUPPORTING BROOD-COMBS: A SUBSTITUTE FOR FINE WIRES OR WOODEN SPLINTS

BY B. F. AVERILL

My experience in wiring frames for staying foundation began in 1879, when I first used comb foundation. I had tried the flat-bottom foundation with the wires incorporated in process of manufacture, and its utility failed to meet expectations. The idea occurred to me that *frames* should be wired, not the foundation. So I ordered a spool of wire and found the wired frames more satisfactory. I used three horizontal wires, 1, 2½, and 4 inches respectively, below the comb-guides.

In 1882 I accepted a managing interest in the South, with the late Paul L. Viallon, of Bayou Goula, La. The wiring problem there was a labor of some magnitude, and the plan of wiring in vogue was quite expensive—a folded tin brace in the center between the top and bottom bars—eight perpendicular wires and two diagonal brace wires from the center of the bottom-bars to the corners at the top-bars.

Suggesting to Mr. Viallon that I could devise a method of staying foundation in brood-combs that would be more economical and sufficiently substantial he requested me to bring out something, saying he would be glad to find a plan that did not require quite so much patience and skill.

I gave an order for some splints 8½ x ⅛ x 1-16, sawn from section stock, and put up a set of foundation and frames the next day. In a day or two I had a swarm hived on them, and a week later a set of drawn-out combs as pretty as I had ever seen.

Mr. Viallon pronounced the innovation



Our field of biennial yellow sweet clover. This was cut the latter part of May, just before it began to show indications of bloom; and although the hay remained out in almost half a dozen showers, and it was nearly two weeks before we could get it dry enough to store in the barn, our cows and horses prefer it to anything else; and the amount of cream and milk was quickly in evidence as soon as the cows got a taste of it. While I write, June 16, the field is one mass of yellow blossoms roaring with bees. To-day I went out through the clover-field pictured above. To my surprise I found patches of alsike clover of wonderful luxuriance scattered through the sweet clover, and both are in full bloom and humming with bees. But there were at least a dozen bees on the sweet clover to one on the alsike; and although I spent quite a little time watching the bees I was not able to find a single bee that worked on the alsike and also loaded up on the sweet clover, and *vice versa*. It was a pretty good demonstration that when a bee starts to gather honey it confines itself to one particular plant, and does not gather a little from one blossom and then get some more from a different plant. There may be exceptions to this; but in that clover-field, where there is a great plenty of bloom of both alsike and sweet clover, each busy worker seemed to have its own job and stuck to it. See Gardening Department.—A. I. ROOT.

an excellent idea, and said they were suited for general utility; but he could not make a departure from standard methods. With his shipping business of full colonies and nuclei such a change off hand would be almost too radical for consideration.

As soft lumber was used for these splints, results might not have been satisfactory. The bees gnawed the splints between bottom-bars and combs. Some of them were cut off entirely.

Here the matter rested until I was situated to use the splints upon my own responsibility. Four years later I was located in Bolivar Co., Miss., with a couple of apiaries of my own, and I had fully tested my method with splints in the mean time.

I used them there two seasons—1500 L. frames, and did not have a comb in the whole lot showing any imperfections. But these splints were sawn from oak lumber, and the bees did not gnaw them as they did the softer splints sawn from basswood in Louisiana. The bees do not gnaw the splints in the extracting-supers except in the brood-combs; and with splints of soft lumber combs are often much disfigured in the center of the brood-chamber. With oak, or lumber as hard as oak, the wood splints are, perhaps, equal to wire in durability.

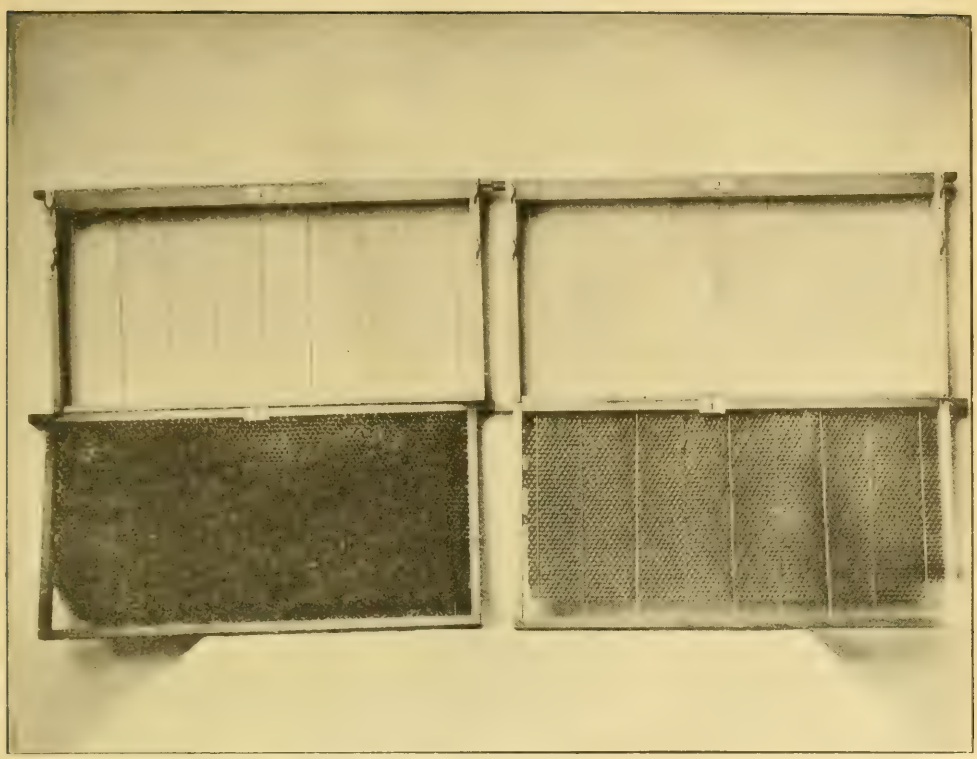
Getting splints sawn from hard material was a difficulty, and I decided to pay the additional cost, and use stays of soft steel wire. In 1907 I ordered 10,000 wire stays, and put over half of them in service. So far I have not regretted so doing.

Some years ago I wrote an article describing in GLEANINGS my method of utilizing wood splints; and the same principle of application is correct for the wire stays. Inquiries having come to me then for further particulars, and thinking a picture might make the plan more explicit, I am illustrating four frames, numbered for a brief statement of their serviceability.

No. 1 is a frame showing the nine wires full length, as I generally use them. It is best to use a drop of glue at each end of the center wire. No. 2 is a frame with half-length wires as I used them for half-sheets of foundation. A call for hives, when I was putting them out on shares, and being short of foundation, was the occasion for using half-sheets to secure straight reinforced brood-combs.

The frames with half-length wires give ample support for full sheets of foundation; but for transportation before being worked out by the bees, the wires should be set in place with glue. By general adoption the double groove and wedge can be discarded, saving a strip of foundation the length of sheets in any dimension used.

Contact with the top-bars is requisite;



Stays of soft steel wire are superior to wood splints.

and foundation is so soon fastened when thus placed that no defective work is possible by the bees. With the center wire glued at the top and bottom, no sagging of foundation has ever occurred. When not glued, there is sometimes a slight sag of the bottom-bar, but never any enlarged cells caused by stretching of the foundation.

No. 3 represents a drawn comb; No. 4 a sheet of foundation as set up when placed in the brood-chamber or super. It will be noted that the wires in frame with foundation are placed on alternate sides. This is unnecessary as the adhesion is as perfect to the wires as when the foundation was set up in 1907.

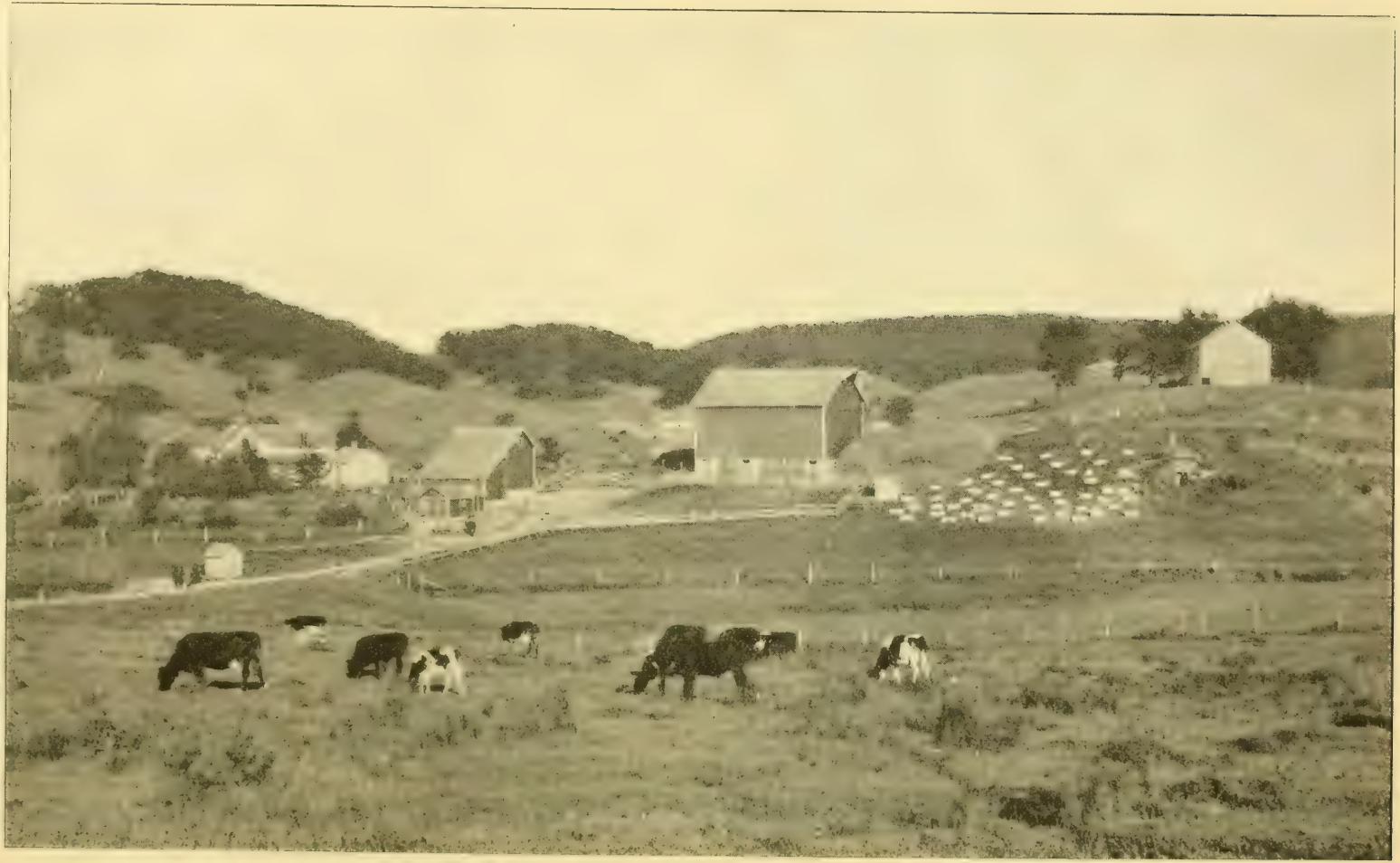
The comb and foundation have been exposed to the changes of humidity and temperature since the cycle of three unproductive seasons, beginning in 1907; and out of all examined I found the foundations as firmly fixed to the wires as when they were first rolled down. In rolling, the wire should be underneath. This advantage of adhesive durance cannot be claimed for the 30-gauge wire now in general use. I have never known frames wired with this small wire that the apiarist did not have to reimbed frequently where foundation had not been given to the bees. Especially is this the case with foundation put in frames in the fall, and not drawn out before winter.

The advantages of the method described are the saving of half the time, and doing a job that will stand, and the saving of 175 inches of foundation in each 100 pounds used—175 inches in width, and the length of the combs used in the apiary.

The initial expense of wiring by the method described exceeds the usual cost by the present plan of wiring; but the saving of labor and foundation where the grooves and wedge are not used, more than offsets the added cost entailed by using the 16-gauge wires for perpendicular wiring.

As the bottom-bars in the illustration do not show any grooves I wish to explain that the wires engage in the groove ⅛ inch deep. In the top-bars, the grooves may be deeper. The comb and foundation, as shown, is in the frame with ⅜-thick bars, and the depth of the grooves is ⅛ inch, top and bottom. On splints and wires I have never used wax. The queens would lay in the cells with wire at the bottom a little more readily at first if they were waxed; but after a few broods of bees are hatched in the combs these cells are not avoided by the queen in preference to the others.

Howardsville, Va.



On a hill facing southeast, the apiary is well protected from cold northwest winds.

A HILLSIDE APIARY

BY OSCAR RITLAND

Our apiary is located on a hill facing southeast, where it is well protected from the cold northwest winds. In addition to this, during the spring months the hives are wrapped with tarred paper to prevent unnecessary escape of heat. On May 6, 1914, 91 per cent of the colonies had five frames or over of brood.

It is a nice thing to have an apiary located on a side hill, provided it is not too steep. When the grass is wet with dew one's feet are liable to slip and cause no end of trouble. For this reason, if it is too steep, it would be advisable to locate under a hill.

One can save space by locating the hives in pairs. If it is desirable to use the Alexander method of building up weak colonies one can set the strong ones alone at first. Then when it is time to separate the two, the one on top can be set down beside the other side, thus becoming its partner. If the entrances are set on each side of where the old entrance was, each will receive part of the flying bees.

I have had the trouble that, when one hive was moved to a new location, too many of the field bees went back.

Elroy, Wis.

THE MINNESOTA SHORT COURSE IN BEEKEEPING

BY FRANK C. PELLETT

It was my good fortune to spend two days at the short course in beekeeping at the University of Minnesota in January. It does one a world of good, sometimes, to get away from home for awhile to see what the other fellows are doing. I feel very sure that the short course was a surprise, even to the enthusiastic fellows who are responsible for the advanced ground taken in Minnesota.



At the University of Minnesota the interest in beekeeping is unflagging.

The department of beekeeping is recent history. The beekeepers' associations of that state have been asking that beekeeping be taught in the university along with dairying and other lines of agricultural activity. The university authorities, while courteous, assured the beekeepers that there was no demand for anything of this kind. They were mistaken, as they are now able to see. Under the leadership of the association president, John Doll, and the secretary, Dr. L. D. Leonard, they went before the legislature and asked for recognition. Not only did they ask that beekeeping be taught, but they demanded that it be given the same consideration offered other branches, and that a separate department be organized.

It seems surprising that great universities should so often have to be led, instead of leading, as they are designed to do. The legislature granted the demand of the beemen, and the department was established.

Prof. Francis Jager was selected to head the department, and entered upon his duties only about two years ago. The choice seems to have been a very fortunate one, for Prof. Jager has the most loyal and enthusiastic support of the association and the beekeepers generally. A substantial increase in funds for the department for the coming two years is provided for in the University budget.

The big surprise, not only to the college officials and to the general public, but to the beekeepers as well, came when, at the short course recently held, the class in beekeeping was larger than any other in the entire university. Seventy-eight persons registered for the course, and nearly one hundred were in attendance at some of the classes. The interest was unflagging, although Prof. Jager was kept busy with classes continuously from eight in the morning until five in the afternoon, some days.

When the college officials of other states, or members of the legislature, tell the beekeepers that there is no demand for anything in our line, just point to Minnesota.

Atlantic, Iowa.

WHO PAYS THE FREIGHT?

BY J. M. DONALDSON

We were passing a large grocery in the city when we noticed a very fine display of comb and extracted honey. The comb was in Danzenbaker sections, and would all grade "Fancy," price 25 cts. The extracted was a good grade of light honey, and was put up in a very neat container. It was also 25 cts.

I said, "Bill, it's not often you see as nice a display as that."

"That's true all right; but do you know I don't blame the city chaps for not using more honey? The price of those sections is not so bad; but when it comes to paying 25 cts. for a jar of extracted like those, then I renig. My honey was much nicer than that, and all I got for it was 7 cts. I don't think those jars will hold more than 12 oz. of honey. They are marked 11 oz., and they are cheap at that price. Have you any idea of what it costs to put up a package like that?"

"No, I have not; but with your experience you should. Now listen, Bill," I added, "the fellow who bottled those goods probably paid 7½ or 8 cts. per pound to the beekeeper. Now, before he could set his selling price he must add to the price of his honey, freight and carting charges, the price of his bottles, corks, caps, labels, and packing-cases. Then there comes the wages, rent, insurance, business tax, and interest on money invested. He must also make allowance for bad debts and breakage. Bottlers are not in business for their health; so he must figure on a little profit. After the bottler comes the jobber, then the retailer. They get their profit. There in the window are the goods, waiting for Mr. Consumer to foot the bill."

"I will admit that, when you take those things in consideration, I cannot see where there is as much profit on those goods as I thought there was; but here is what sticks me—what sense is there in using such a costly package? Why not use tin buckets or Mason jars? Then they could give the consumer more for his money."

"There are several reasons. Just look in that window. There are sauces, pickles, jams, jellies, meats, and even fish put up in fancy glass jars, and some of the jars cost more than the goods they contain. You know that a great many people choose their food, first by looks, then come quality and quantity. Fancy packages are what they demand, and those you must give them.

"There is another reason why you could not use Mason jars or tin pails. Grocers will not handle packages that are daubed with honey, nor do they want it granulated. Those jars are sealed air-tight, and are never sticky. The honey will remain liquefied for a long time."

"How is it that you can sell honey that way if the grocers can't?" he inquired.

"That is easily explained. I am selling direct to the family trade. My honey is consumed before it has time to granulate. Then I explain to each new customer that honey will granulate, and why it does. I also tell them to keep it in a warm dry place."

"Say, Donaldson, be honest about this; can't you sell a little cheaper than you do? At 50 cents a quart, allowing you 5 cts. for the jars, that leaves you 15 cts. a pound for the honey, and you know you could not get that price if you sold wholesale."

"I know that," I replied; "but let me tell you that when I have to bottle honey and retail it at wholesale prices I'll quit the business and devote my time to something that will pay. If I do the bottling and re-



Two characteristic views of the honeybee on white clover, the first showing the bee in the air about to alight on the blossom: and the second, taking the nectar from the outside. Note the path or motion of the wings in the first picture—wings at rest in the second.

tailing I consider that I am entitled to the profits. Of course, my expenses are not as heavy as the city bottler and retailer, so I can split the difference with my customers, giving them more honey for their money. There is a more important reason for charging the price I do.

"If you are going to cater to a family trade you must be able to supply it every year and all the year. You cannot supply it when you have a crop, and let them go when you have a failure. Where would I have been this year if I had been retailing at wholesale prices? I did not harvest one pound of honey; and when I should have been piling on supers I was feeding from three to four hundred pounds of sugar to keep the bees alive, and living in hopes that the fall flow would put them in condition for winter. Last season was a bumper crop, and I had quite a lot left over, but not nearly enough to supply my trade.

"Now you see where the bottler and retailers' profits come in, don't you? They put me in a position where I can buy and sell at a profit, and hold my trade too.

"Now, Bill, you have been telling me of things you don't understand, so here is one for you. When my honey began getting low I sat down and wrote to sixteen beekeepers who were advertising honey for sale. I asked them to quote their price on honey delivered at their station, the sale to be cash with the order.

"I received twelve replies, and every one of them asked from 1½ to 2½ cents per pound more than the market price. What kind of business do you call that?"

"Well, I should say it was mighty poor business, with the emphasis on the poor; but where did you get the honey you are selling now?"

"I get it from a packer. It is very nice too. It's a blend, but it just suits my trade because that is what they are used to."

"Don't you suppose I could sell quite a little honey where I live? If you can buy and sell at a profit, why can't I?" he queried.



"How doth the little busy bee
Improve each shining hour!"

"You can if you do a little talking. Since you asked that question I must tell you a little joke, and it's on you too. I was over to your town last week and made quite a few sales. I sold to eight families on the street you live on. When you go home tonight ask your next-door neighbor (Mrs. Gaskill) how she likes Donaldson's honey."

"Look here, old man; you are getting too fresh," Bill exclaimed. "I am going to make it my business to see that you don't do that again."

"Well, that's business. See that you don't forget it."

If beekeepers would devote as much time and study to marketing as they do to producing a crop, there would be less cause for grumbling about the market price of honey. There are many who live in thickly populated districts who, with a little effort, could retail their honey for much better prices than the market quotations; but instead of doing so they keep on shipping into the cities, paying freight, commissions, and cartage. When their returns come they will growl about the difference between what they received and the retail price.

I often wonder if such beekeepers ever stop to consider what the added cost of honey is, from the time it leaves the apiary until it reaches the table of the consumer in the cities.

Moorestown, N. J.

BUSY BEES OF BEEVILLE

BY J. W. TAYLOR

We have worked up from five colonies in 1884 to about eleven hundred at this time in eighteen apiaries, all of them two to sixteen miles from this city in nearly every direction. We work our queen nuclei up to full colonies to winter, and start new ones every spring. I, my son, and a hired man take care of all the work in connection.

We work for bulk comb and extracted honey, and we have made a specialty of breeding for the best honey-gatherers.

Beeville, Tex.



Mr. and Mrs. J. W. Taylor.

BEES AND THE YOUNG IDEA

BY J. L. GRAFF

A colony of Italian bees has been installed in the biological laboratory of the high school at Holland, Mich. The bees are to become an object of study to the biological class during the whole of the school year.

They have been hived in a case with glass sides, and during the bloom season they will be located at an open window so that they may go and come at will.

The study will be in charge of a young woman teacher who is informed on bee culture. It is a movement that should interest not only every apiarist in the land but thousands of people who should be eating honey if they are not.

It is particularly interesting to all Michigan, the land of bloom, and to the people of other states in which there is an increased spread of crops that afford work for bees and profit for their owners.

The experiment at Holland is being watched by varied interests, among them the men and women who appreciate the pollination agency of the honeybee.

Chicago, Ill.

AN ELECTRIC BARREL-FILLING INDICATOR

BY G. W. HAINES

When I started in beekeeping as a business I soon learned it was a hard dirty job, as well as a rather expensive one, to allow a honey-can to run over. So I rigged up the scales at each apiary with an electric bell to ring every time the scale-beam raised.

The weight was set to equal that of a full can. When the beam raised the bell rang and shut down the honey-gate. This worked to perfection for several years; but since my apiaries have outgrown the small cans I could not set a 600-lb. barrel on the scales. I soon found the old trouble. About 25 lbs. of honey would run down over the barrel and over the floor.

I sat right down and said to myself, "I will have a bell on that barrel." I got through the season by running over two more barrels. During the winter I made an electric outfit for each apiary. It hooks in the bung of the barrel, set in the hose or funnel. When the liquid gets to within 2½ inches of the top it raises a wooden block or cork, working on the same plan as a battery switch, making a connection, and the bell rings. A heavy cord hangs over the extractor, attached to the blades of a small switch and to a hole bored in the end of the handle of the honey-gate. When the bell rings I pull on the string. The switch stops the bell ringing, and shuts down the honey-gate. Then I change the barrel for an empty one. I have several honey-tanks that hold a ton each. I hook an electric device made a little differently from the one for the barrel to the top of the tank. When the liquid is about four inches from the top it raises a wooden float-block, makes a connection, and rings the bell. I have spent considerable time looking to see if a tank was full. You all know it is well worth $2.50 to clean up about 25 lbs. of honey spread over the floor.

The outfit requires a roll of wire, electric bell, dry cell, small switch, and the device for the barrel or tank.

Mayfield, N. Y.

CHUNK HONEY ADAPTED TO CAFETERIAS

BY THE OUTLAW

It is a matter of common knowlege that bees do their best when the cluster is least broken up. The ordinary comb-honey section has this fault of breaking up the cluster. Sections also have to be bought in quantities, and there is also the expense of the furniture for the supers. In my own case with one colony of bees hidden away on a roof, it naturally follows that the idea of purchasing sections and making super furniture did not appeal. I might also state that I have a natural aversion to paying out real money where satisfactory results can be obtained without making any investment. The solution was to have the surplus honey stored in ordinary shallow frames made from the wood of boxes in which the city grocer is in the habit of delivering groceries.

In my own apiary during the past season my one colony of bees, besides being increased to three colonies, produces for me approximately 150 pounds of honey, and the only outlay was the few moments' time it took to make the frames and supers from the material just mentioned. The average weight of such frames was between three and four pounds. It is not the claim here that such frames of honey are superior to sections, but I do claim that such frames of honey can be produced with but a very small fraction of the time and trouble involved in producing honey in sections; that, if properly manipulated, more surplus honey can be produced; that the honey is much more conveniently handled; and that the small amount that such city apiarists have can be just as readily disposed of as if it were in sections.

In place of having to expend real money for sections and fixtures, whose initial cost will amount to the value of the crop received, his expenses are nothing. Such frames of honey as a present to your friends (and here I speak from actual experience, having disposed of about 30 per cent of my crop in this way) are preferred to a section; the reason being, perhaps, that a section holds a scant pound while the frames hold about four times that amount.

At first I was a little bit dubious about being able to dispose of such frames of honey, as the average grocer having become accustomed to honey in sections would not take kindly to such cumbersome frames, neither would the average person who has become accustomed to buying honey one section at a time care to purchase as much

honey at one time as such frames contain. In fact, the thought of disposing of such frames at any regular market, or the thought that such a market existed, had never occurred to me until one noon, while making the daily round at lunch time through the food avenue of a cafeteria I noticed that among the desserts resided a row of saucers, each of which contained a portion of comb honey.

I could see no special reason why a cafeteria should desire honey in sections, and so took the matter up with the manager. He said he would as soon have the honey in such frames as I had as in sections, and was willing to take whatever amount I had, and pay the same price per pound as he was in the habit of paying for sections. I might further state that, from my observation, the cafeteria here on the Pacific Coast has been to a certain extent neglected. Probably only about one in three of the large cafeterias is in the habit of keeping comb honey as one of the desserts. Apparently a little missionary work is necessary, and if some live salesman took it upon himself to do a little work here in the cafeteria belt of the Pacific Coast it ought to result in the developing of a good healthy market.

PUSHING HONEY SALES WITH ADVERTISING

BY JOS. BRUNSTEIN

I came to this blessed country on July 7, 1913, and, knowing beekeeping, I found a job where I worked hard to get acquainted with American systems. When the season was finished I lost my job, owing to my leaving to take up a homestead. Coming back to Denver I could not find work, so I went to a honey firm and asked the manager to allow me to solicit orders for them by the retail trade on a commission basis. He explained to me that they are doing more of a wholesale trade, and he could help me by selling honey which I might resell to the retail trade.



I worked hard to get acquainted with American systems.

I began to investigate; and, seeing that there was a chance to make a living, I started to peddle honey at groceries, with a capital of $100. It was hard to induce some of them to keep honey, as they told me they had no demand for it; but in time things looked better. I gave to each grocer display cards, and promised to exchange the candied honey for new. Before Christmas I inserted small advertisements in the newspapers, like the following: "If you want to have a sweet Christmas holiday, order a gallon of Puritas honey, which will be delivered to you." I got some orders from it too.

But I saw that the Denverites are more used to the canned syrups and molasses, and were consuming honey like a drop from a

big barrel. On this account I began to look for ways to get them more acquainted and interested in what honey is.

Putting an advertisement in the Sunday edition of the Denver *Post*, one of the largest and most popular papers in Colorado, I got as a premium for my paid advertisement a saucer. Later I learned that this paper is giving away on each Saturday from 4000 to 5000 premiums for paid advertisements in the Sunday paper.

I went to the business manager and had a talk with him. He was busy, and told me to call the following week, and so on; but I kept coming till I had a chance to talk it over more freely, and to give him a jar of honey to taste. He promised to give me a chance, and I was satisfied with this interview, as I knew he would like it. The next week I got an order for four thousand jars of honey.

In this way I accomplished something more than by advertising in the newspapers. The reason I did not advertise more was the lack of capital; but, as experience taught me, honey is not advertised as much as it ought to be. This could be very easily accomplished by some writers in giving to the editors of big city papers and country newspapers, home journals, and magazines, articles on the honeybee, and how honey is produced, making nice little stories of it.

Next fall I hope to sell more honey, and the summer I shall spend with the little creatures.

Denver, Col.

JOLTS AND JOTTINGS

BY E. F. ATWATER

GLEANINGS for Jan. 15 touches on a number of items that interest me, and so I give a few points gained from experience.

In Dr. Miller's Straws it is quoted that, in labeling glass, we should put the paste on the glass. We have labeled thousands of bottles for honey, and can beat that for speed. Simply buy gummed labels—no paste to make, no time to waste, and they stick. It is only on tin, which is usually a little oily, that there is any trouble.

Don't rely too much on combs fresh from the extractor not being moth-eaten. They may not be completely consumed, but they will sometimes be ruined. Even full combs of honey are not safe.

In his last Straw Dr. Miller says, "Please, Mr. Editor, don't say a V starter in a section is a satisfactory compromise. It's false economy. The bees will fill out with drone comb; and unless you use excluders, the queen will go up and fill out your sections with drone brood."

For many years Dr. Miller has qualified the above assertion by saying that the queen would go above unless there were plenty of drone comb below in the brood-nest; but it seems that queens are becoming less circumspect, and now will naughtily go above anyhow—except in this locality.

Dear beginner and respected veteran, use a half-sheet or V starter with a bottom starter, if you must economize; for in my experience and observation not one queen in a hundred, on the average, will go above to lay, regardless of the presence of drone comb below. We have used hundreds and probably thousands of supers with a considerable gap between the two starters. Most of the extensive producers whom I have visited do the same, either regularly or at times when they run short of foundation, and there is very little trouble. With the increased use of ten-frame hives it is even less probable.

Of course many seasons such a plan may not be true economy; but even that is a question in the West, with its 10 and 12 per cent money.

Some very careful experimenters, extensive producers, doubt the advantage of full sheets in the sections; and while I am not among them, yet they get very good results.

In Mr. Crane's Siftings reference is made to the new way of making chaff division-boards. Could not oiled corrugated paper, cloth covered, be used?

In Mr. Holtermann's excellent article, mention is made of the use of tartaric acid to prevent granulation of syrup. Some have reported failure with its use; and in this connection, I have understood that the object of the acid is to secure partial inversion of the sugar, and that inversion does not take place so much by the mere presence of the acid as by being boiled with the acid for some time. It is possible that, by so doing, the syrup will much more nearly approximate honey in its composition, and be far less liable to harden in the combs.

In Mr. Baldwin's article reference is made to the old plan of rolling a queen in honey for introducing. I have had an occasional failure, even by this method.

In Mr. Wilder's article on Caucasian bees it reads a little queer to be told at the last



Prominent beekeepers of New Zealand were present.

that he has over 1000 colonies of pure Italian queens and that he will add to them. With all the advantages claimed for the Caucasians, why should Italians, even though excellent, be tolerated?

In regard to Mr. Miles' article, "Fighting the Ant Invader," I have been quite successful by running an iron bar into the nest, sprinkling a gallon of coarse salt in and on the nest, and throwing a pail of water over it. The ants usually leave before long.

In Heads of Grain Mr. I. Langstroth asks for reports on ventilated escape-boards. They work as quickly as any, and are very satisfactory.

Mr. J. S. White gives his plan of wiring, which is substantially what we call the "Chantry method" here. We drive a 1¼ nail through the top-bar, and bend the end to make a hook to which to attach the vertical wire. We have thousands of frames so wired; but unless waxed over where the wires cross, bees may gnaw a hole there, which may not afterward be filled.

This plan stops sag in the middle, with splints necessary; but I may abandon it, as it is not adapted to electrical imbedding.

I agree with Mr. O. Bromfield in his condemnation of splints, after using tens of thousands of them. If one can get perfect combs built over them, they are O. K. used in five-inch lengths in connection with wires; but—there's the rub.

Meridian, Idaho.

FIELD DAY OF CANTERBURY BEEKEEPERS

BY E. G. WARD

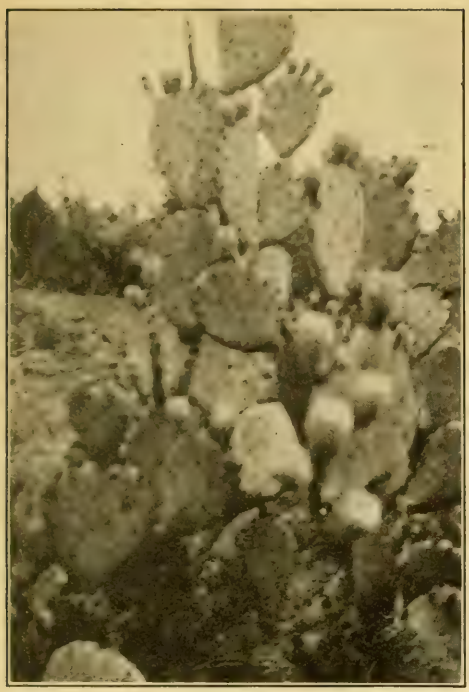
The annual field day of the Canterbury Beekeepers' Association was held on Feb. 20 at Dr. Pairman's apiary, Governor's Bay. About fifty people attended. The weather was ideal, and the trip by motor boat was thoroughly enjoyed. Prominent beekeepers were present from other districts, and addresses and demonstrations occupied the time profitably.

Mr. L. Bowman, government inspector of apiaries, examined a hive which had been treated for foul brood by Dr. Pairman on lines similar to the Baldridge method. The treatment was found to be successful.

A paper by Mr. W. E. Barker on "The flora of New Zealand in relation to the honeybee" was much enjoyed. It showed how valuable the native flora is to the beekeeper.

The president, Mr. E. G. Ward, gave a short address on the aims and objects of the association, and appealed for contributions of honey in aid of the poor of Britain and Belgium.

Mr. R. W. Brickell, secretary of the National Beekeepers' Association, was present, and gave a detailed account of what was being done by the National Association to improve the conditions existing. He ex-



A wild spineless cactus found in Texas and Mexico, showing both fruit buds and slabs. See p. 556.



Common cactus growing wild near Laredo, Texas, and also over the line in Mexico. See page 556.

plained the details of the contract entered into between the Bristol and Dominion Producers' Association and the New Zealand Honey-producers' Association and the Government regulations dealing with the export of honey. The contract insures that a minimum of 100 tons and a maximum of 500 tons of honey be guaranteed a market for a period of three years at a satisfactory price. The local market will be relieved, and much better prices realized in consequence.

Mr. A. Ireland explained what the Canterbury Association had done to help the movement during the last three years, and did some energetic canvassing for the co-operative association.

After the customary votes of thanks to the host and hostess the party left for home.

St. Albans, Christchurch, N. Z.

THE DARK AND BRIGHT SIDE OF FOUL BROOD

BY G. C. GREINER

In recent years the subject of foul brood and its treatment has been so many times and so thoroughly discussed that it almost seems like a waste of time to say more about it. The only excuse that might justify a reopening of the subject is the fact that the experience of passing years brings out occasionally new features—something that has not been spoken of before. At the same time the constantly enlisting recruits in the reading circles of our bee-periodicals, who had not the privilege of following up these discussions of former years may look for just such information.

Before I had the misfortune to fall a victim to that dread disease the simple word "foul brood" sent a thrill of terror through my veins. Although I was prepared for the combat; had read everything our bee-magazines had published for years on this subject; had studied the bulletins sent out by the Department of Agriculture of New York; had new clean hives with the necessary outfit on hand, and had ordered my queens, still the uncertainty of the outcome, whether foul brood could be successfully eradicated or whether it meant the end of my occupation as a honey-producer, was anything but pleasant. But since I passed through the ordeal four years ago, and since



Another view of the common cactus showing a growth higher than a man's head. See page 556.

I have found by experience that the foul-brood trouble is not as serious as it appeared at first, I look at these things in a very different light. It is an easy matter for the alert beekeeper to keep the disease under control. In spite of being surrounded by foul brood we can raise as good paying crops of honey as we did before the disease made its appearance; and I go even one step further, and say we can raise better crops than we ever did.

To keep control of the disease it is necessary that the beekeeper know the condition of his bees at all times. This requires constant watchfulness and inspection. Bees must be examined at regular intervals; and by doing so he may see things that require his attention which otherwise would be passed unnoticed. Although I have great faith in Italian queens as foul-brood resisters, they are not positively proof against it. Now and then a slight attack will reappear, and every queen that allows the least indication to take a foothold in her colony should be replaced by another, either home-bred from the best queen in regard to honey-gathering proclivities and immunity from the disease, or else purchased from a reliable dealer's guaranteed stock. This in turn will have a tendency to improve our stock, and consequently increase our crop. Slightly affected colonies of Italian queens can be cured by the caging process; but the disease is liable to reappear again, and for this reason it is safer to supersede them with more reliable stock.

To say that foul brood is a blessing in disguise may be a little exaggerated; but there is certainly one good point about it. It has a tendency to clean out some of these one-horse concerns generally termed farmer beekeepers. They are no benefit to the honey industry. In some out-of-the-way place along the backyard fence, hid by grass and weeds, they keep a few colonies of bees, expecting to raise a little honey for their own table. In the spring, or during a honey-flow, they may supply their bees with the surplus appliances they consider adequate for the season; but after that they pay little or no attention to them. They are never examined, and are left to fight their own battles. If they are free from disease, well and good; if not, just the same. For all the owner knows, his bees may be rotten with the disease, weakened down to a mere handful, or possibly gone entirely, and their hives a prey to the robbers of other apiaries. Thus they become a constant menace to neighboring beekeepers who are trying to keep the disease among their own bees under control. This state of affairs may not be entirely the fault of these farmer beekeepers. They do as well as they know how and as their situation permits. Just at the time bees need the attention of their keeper the most, farmers need every minute of their time to see to their haying and harvesting or other necessary farm-work, and it is only a natural consequence that their bees have to be left to shift for themselves.

In the fall they gather up whatever their bees have accumulated in the line of surplus honey. Frequently, in favorable seasons, it is more than they need for their own table, and the surplus is taken to the market, where it again becomes a menace to the professional honey-producer. Not having the time or ambition to prepare their little crop properly it is brought as it is taken from the bees. Unsorted, uncleaned, and unprotected it is placed with a load of garden truck in an open wagon. Dust and dirt have free access to the honey; and by the time it arrives at the market it is anything but an inviting, appetizing morsel. Not knowing anything of the ruling market price, and their fear of not finding ready sale for it, they offer it at two, three, and even five and six cents below the price properly put-up goods would demand. To a

certain extent this establishes a lower market price. I have had people call at my wagon, and, after inquiring the prices of my goods, would say: "You ask too much for your honey. Your neighbor down the line asks only so much."

As I never do any bantering, but uphold my established prices, I generally advise them to buy wherever they deem it the most profitable. Some, of course, leave me and go back to that cheaper neighbor; but the majority, who are observing enough to notice the superiority of my stock, would pay my price.

Annoying as it is to have these outsiders tamper with a business they do not understand, their slipshod management does not seriously interfere with my plans. I do not wish to be selfish, nor deny others the privilege I enjoy. On the contrary, I am always willing to let others profit by my experience. As far as I am able I am ready to assist by word and actual demonstration whenever I am called on to do so; but for the benefit of the professional honey trade, to raise beekeeping to a higher standard, the cleaner the sweep the better.

As an additional foul-brood report I will say my bees were free from the disease the first two years after the treatment. A couple of stray black swarms that had taken possession of empty hives the following year developed the disease in moderate form. Their queens I promptly superseded with Italians, which cured them permanently. Last summer I again noticed three slightly affected colonies—at least I suspected them. I applied the different treatments to all three. To one I gave a new queen. The queen of the second I caged for ten days, and four brood-combs of the third, that showed the least indications, I moved into their extracting-super. All were cured for the remainder of the season.

La Salle, N. Y.

WHERE STIMULATIVE FEEDING DOES NOT STIMULATE

BY E. S. MILES

I don't like the term "stimulative feeding," since to me it seems misleading. My experience is exactly like Dr. Miller's. When the bees want brood, and have honey on hand, they will feed what they have, even if nothing is coming in; but, of course, if none comes for a sufficiently long period, brood-rearing will slack off and finally cease altogether. Bees appear to distinguish between fall and spring; hence when the final stop to gathering comes in the fall they seem to know that stores may be more important than a few more bees. Unless there is an abundance of honey on hand they may let some brood perish.

Let me try to tell how my bees do in spring. When first set from the cellar all queens will lay a patch of eggs, even if nothing is to be gathered. If there is old pollen and honey in the combs these eggs will be hatched and the brood reared. If there is an abundance of old pollen and honey, the queen will keep on laying until she has all the brood the bees can protect on cool nights. Now, so long as my colony is in this condition nothing can be gained by feeding; so it follows that the phrase "stimulative feeding" is misleading.

My bees will always do as outlined above; and if I had any that would not I would surely part with them and get some that would. But suppose no stores come in, and the first brood emerges, the colony gets stronger, and can cover more brood. That is something I have never known; for, within the time of setting from the cellar, and the first brood emerges, there always comes bloom enough of some kind to furnish some new pollen and honey. The coming of additional stores allows the bees to enlarge the brood again to their capacity for keeping it warm.

Of course, if one prefers he may call this gathering a "stimulation" and be correct; but it should be borne in mind that there is "a time for everything under the sun." If we had the condition suggested above, where the colony could cover and mature more brood, and if more were desirable, and if pollen or a substitute were available (notice the ifs), and if old stores were running short, what would we do? I would feed. To stimulate brood-rearing? Well, you could call it that if it makes you feel better; but I say to myself, "The bees are running short of stores; they are becoming economical; and if I let them practice economy *now*, may be I'll be compelled to do so later."

So I practice what I call "doping 'em up." Put on a feeder and feed them till they feel rich and fat—that is, unless I am morally certain a flow will start up within a day or two. In such a case I feed them enough so that, if I were in their place, I wouldn't worry if I thought it would rain

for two or three days. Now, what will be the result? The queen will immediately enlarge the brood to the ability of the bees to cover, as at first, and the bees will mature the brood so long as there is no need of feeling economical.

Why not a little warm syrup every evening, after the good old orthodox way? Well, that's all right with a few hives or one yard, if you would prefer doing it a little at a time and just at dark, so the bees will not fly. But if you have more than you can feed at dusk, why make every colony go through the excitement, wearing themselves out trying to find something every time you feed? Save time and bees by "doping 'em up" all they will need at one feed. What if you give them too much? Well, in my locality, with my bees, that would be just right.

You'll be surprised at the way it will be turned into brood in the spring. Of course, now, you know that if a good flow from fruit-bloom, willow, or if clover is likely to yield soon, you wouldn't "dope 'em up" so heavily as to have syrup left to go into the supers—no danger, probably, of this before fruit-bloom; for with plenty of room the right kind of bees will use up any surplus of stores after fruit-bloom and before clover.

To recapitulate: In the spring bees will mature all the brood they can keep warm, if they have plenty of stores. If they run short enough to cause a slacking off of brood-rearing, give them feed, and give them plenty of it, for best results. If you wish to call this "stimulative feeding," good, although the idea should not be entertained that the brood-nest can be enlarged indefinitely in early spring simply by a little feed given regularly. Dr. Miller is undoubtedly right in holding that this idea in the head of an inexperienced person might do more harm than good.

Dunlap, Iowa.

INDIANA NOTES

BY S. H. BURTON

Prospects for a honey crop are anything but encouraging in this or "Hooppole Tp., Posey Co., Injany." The cold backward season has retarded brood-rearing, and bees are very light in stores. It looks now, June 1, as if I would have to resort to feeding—a condition never heard of before in this locality.

White clover is just beginning to come back. Patches of it can be seen along the roadside, and a few blooms scattered over the meadows. As predicted in a former article, it will be some time before this section of the country produces any white-clover honey.

Bees have worked freely on yellow poplar between showers; but the rainy weather has spoiled the prospect from that source.

I am in love with the gray Caucasians. They are unquestionably the gentlest bee I ever handled; and as to breeding I will say you just ought to see a colony that was started five weeks ago. A queen was put on two frames of Italian brood with about a pint of bees, and to-day that colony is nearly as strong as any in the yard. I have opened it many times without gloves, veil, or smoke, and have yet to receive the first sting from them. After handling a cross race of Italians that will fly at my hand by the hundreds when passing it over the brood-frames, it is a pleasure to work with the gray Caucasians.

What is it worth to transfer a colony from a tree into a hive if the owner of the tree falls it for you and helps cut the log open?

There are a good many drawbacks to the Alexander plan of making increase. It is conducive to swarming, and fails to attain the desired end at times. I have had bees refuse to start queen-cells in the upper story with the queen confined below.

The plan I like best is to divide the colony, placing the nuclei on the original stand with or without the queen, and placing the original colony beside it. After both are started again nicely, remove the old colony to a new location.

I don't like brood-frames made from California redwood. The wood is too brittle to do a neat job of wedging in foundation, and the wood is inclined to sliver and split easily.

Washington, Ind.

Intensive Farming

They used to have a farming rule
Of forty acres and a mule.

Results were won by later men
With forty square feet and a hen.

And nowadays success we see
With forty inches and a bee.—Ex.

Heads of Grain from Different Fields



The Backlot Buzzer

Ain't much to say under this picture other than to just let 'em swarm.

Shipping Bees to British Columbia

According to the terms of one of the classes of our foul-brood act, all bees imported into British Columbia are quarantined for nine months at the point of entry. The transportation companies, to protect themselves from a lot of trouble, refuse to accept bees for delivery in British Columbia. Shippers in the United States and Eastern Canada will find it wise to turn down all orders from this province.

Queens in cages are admitted at present, but every beekeeper has been advised to buy only from breeders who can show a clean bill of health from an inspector.

To-day British Columbia has fully one thousand beekeepers, mostly beginners on a small scale; but as the inspectors become acquainted with its immense territory they begin to believe that the province will at no distant date march into the front rank as a honey-producer. Our government is guiding the efforts of every one in the industry, and our progress is very rapid. We cut down our importations of honey last year by 58 per cent, and trebled our home production. Our primeval forests are literally full of honeybees in the settled districts, so there is no excuse for anybody wanting to import from other regions.

The inspectors' job is to keep this huge area free of foul brood. We have had four attacks in five years, all traceable to imported bees. I am fighting the last and most serious. It originated in the city of Vancouver from imported queens, and was carried to a couple of other points by unlucky purchasers. Last fall I found American foul brood in 20 apiaries, affecting 45 colonies, all of which were burned.

We make no pretense of curing the disease in British Columbia. One diseased cell condemns the hive to the flames. Now that I am in the fight I endeavor to trace the spread of the contagion, as all information is valuable. Here is one point I discovered: In one apiary of five colonies I found one affected. The nearest diseased colony, a strong one, was fully two miles away. The affected colony was also very strong, having been a very large first swarm. After some close questioning I found that the hive-body had been bought from an infected apiary where it had been in use for a weak swarm just three weeks. The frames were new with full sheets of foundation. Advocates of the "shake" system of cure will kindly take notice.

As I see it, the essence of this plan is a pure gamble. You despoil the bees of all their combs, stores, and brood, and chance that about 99 per cent of the germs are in the plunder. Then you hope that the germs on the bees and hive will never get an opportunity to enter the anatomy of a bee baby. We in British Columbia are just as anxious to wind up the career of the hundreth germ as the other ninety and nine. One of our inspectors in one apiary found that the spores must have lain dormant three years before their opportunity arrived; for the hive, brought from an infected region in Oregon, had been in British Columbia that length of time before foul brood developed.

F. DUNDAS TODD, Foul-brood Inspector.
Victoria, B. C., Canada.

A Simple Feeding Device

I have always been trying to devise some slow but sure automatic way to feed for stimulation since Mr. E. W. Alexander described his stimulative feeding in his bottom-board feeders. I wanted something that would feed very slowly but continuously night and day, and something that could be used in outyards so it could be carried right along by only going to look after them once in a week or two.

This spring I broke the lining from the inside of a Mason fruit-jar cover, punched a tiny hole from inside in the center of the cover, and put on rubber and cover to make the jar air-tight except the hole punched.

To prepare the hive for the feeder, remove the cover; pick out the center of the cluster if the weather is cool; replace the quilt, and spread on top of quilt several thicknesses of newspaper. Now punch a hole through the quilt and papers between two frames right above the cluster, about the size of the end of one's finger; invert the jar, and set over all the empty supers, and cover. You see there is no space between the feed and the cluster except the thickness of the jar cover, and all the feed is delivered automatically at that tiny point.

All it costs is the cover, which lasts a lifetime, and jars can be used for canning purposes if not in use. The glass jar shows how much feed is in the feeder at a glance. There is no rust, no rot, no leak to this feeder. Try one feeder on your pet colony, and see if these thoughts are not worth the cost of GLEANINGS one year.

Colo, Iowa. D. E. LHOMMEDIEU.

Dampening Sections

I take as many sections in my hand as I can hold tight; hold them under a small stream of water; wet them on both sides just where to be bent. A gallon tin can full of water with a nail-hole near the bottom will do.

Acequia, Idaho. MRS. I. B. TITUS.

The National Net-weight Law Does Not Apply to Shipments inside of State Boundaries

I wish a little information in regard to the net-weight law in regard to honey. I sell my honey by the case, nothing being said about weight, to a retail grocer in my own state. Will it be necessary or desirable to stamp the net weight on each section? That is, can an inspector interfere with it unless it is billed to another state? Suppose I were to send a package of honey to a person in another state as a gift, would it have to be stamped? This seems to me a strange law. It is all right for packages that man fills and can put in a certain amount; but I can't see why it should apply to honey any more than to apples, oranges, or eggs.

Arcola, N. C., April 28. R B. HUNTER.

[The national net-weight law does not apply to local sales made within a state. You can sell honey at your local grocery, or send it clear across the state anywhere without marking the net weight on the individual sections nor upon the case itself. In a few states laws have been enacted that are in conformity to the national law, but we do not know of any state where it is required to put the net weight upon sections of comb honey.

You are right. It ought not to be necessary to mark the net weight upon the section of comb honey where the weight varies so, any more than it should be necessary to mark the net weight on each individual hen's egg; but on all interstate shipments it is absolutely necessary, to comply with the federal law.

If you send a case of honey across the state line as a gift we don't know that the law would apply; but we would advise you to mark the weight upon each section, or, perhaps, better, mark the minimum net weight, and then grade the sections according to weight.—ED.]

The Variation in the Color of Italian Drones from Different Queens

Why will one Italian queen produce all yellow drones and another one all black drones?

Which are the best drones to mate from—the yellow or the black?

Which are the purest leather-colored stock—the yellow or the black drones?

I purchased two queens last summer, the first in a full colony. This queen's drones are all yellow. Her bees also show some yellow.

The second queen I received was in a five-frame nucleus. This queen's drones are all black. Her bees show a darker color than the above (or first) queen.

Young queens mated from these black drones produce dark-colored bees, some very dark, almost black.

Jacoby, La., May 31. R. L. LINDSEY.

[Italians are not a fixed race. Some strains are yellower than others. The yellower the bees, the yellower will be the drones as a rule, although there are exceptions to this. Drones of leather-colored queens are generally dark; while drones of goldens are quite as yellow as the bees themselves. In the case to which you refer, you probably purchased a queen of the golden order the first time, and the second time a leather-colored queen. It is possible that the second queen was not pure. If such were the case, and you bought a tested, you should send samples of the bees to the breeder, and ask for a replacement. But bear this in mind, that the queens of drones produced from leather-colored bees show almost no yellow, and sometimes none at all; but such drones (if the mother was pure) will produce fine gentle Italians that will probably show two dark yellow bands, and a third one somewhat indistinct, and very often not at all until the bees are filled with honey. The color of the drones is not as uniform as the color of the workers. This means that judging a queen by the color of her drones is not always reliable.

It is evident that the leather-colored Italians come the nearest to being a fixed race. They are more uniform in their general markings—that is to say, they vary less as to the color of drones and workers. They are generally good honey-gatherers, hardy, and uniformly gentle. These Italians are raised on one or both sides of the Alps, and through centuries in a vigorous climate, in high altitudes, and are, therefore, a strong race. The extra yellow Italians are raised in southern Italy or in Sicily. They will not stand our northern winters, are irritable, but are well adapted for a southern or a mild climate.—ED.]

Does Honey-dew Granulate More Readily than Ordinary Honey?

Does honey-dew honey ever granulate? My bees are bringing in a honey new to me. It granulates before they can get the cells filled. It is not very dark, and tastes very well. How can I get the sugar out of my extracting-combs for the next honey-flow?

Havana, Ala., May 29. J. S. PATTON.

[Strictly speaking, honey-dew honey is not honey, and is not so regarded by the Bureau of Chemistry, Washington, D. C. If, therefore, it is not pure honey it might not granulate quite the same as ordinary honey. So far as we know, honey-dew honey does not granulate more readily or more quickly than ordinary honey; but that it does granulate there can be no doubt.

Of course, it may not be honey-dew honey that you have. There are some kinds of honey that granulate very rapidly, almost as soon as they are stored in the combs.

We would not advise you to have it taken out. If the bees get plenty of water they will utilize it in brood-rearing. It may be advisable for you to dampen the combs containing the granulated honey. If you find the bees carrying the granules out of the entrance of the hive we would advise you to do this, but hardly think they will carry it out.—ED.]

Mating before Mailing

If I buy virgin queens and have them mated in my yard, would they be just as strong and prolific as queens mated before they are put in the mail? How would you introduce them in a full hive during the honey-flow? A SUBSCRIBER.

Mineola, N. Y.

[If you have them mated in your own yard they would be just as strong and prolific and perhaps more so, as if mated before having been sent through the mail. There is this one decided disadvantage—if they are mated in your own yard, they would necessarily mate with whatever drones might be present. In case you have black or hybrid bees your queens would be pretty sure to be mismated. The best plan for introducing virgin queens is the smoke method, which we send with each virgin queen sent out. Of course, in order to be sure of success the old queen should always be removed.—ED.]

Wood Alcohol Dangerous

A. W. Smith, p. 291, April 1, advises the use of wood alcohol in imbedding wires in foundation. Would it not be well to warn the readers of GLEANINGS that wood alcohol is a dangerous poison? It sometimes causes blindness, and the fumes are very injurious to the eyes.

Boston, Mass. C. H. HOWARD.

A. I. Root OUR HOMES Editor

Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me.—MATT. 25:40.

Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete withal, it shall be measured to you again.—LUKE 6:38.

I suppose the most of you, my good friends, have heard the story about a man who was moving with his family, household stuff, etc. While making the trip he was obliged to stop at a country hotel over night. This hotel was kept by a good Christian man. I wonder how many such there are nowadays who entertain travelers. Well, after things were taken care of for the night, the stranger sat down on the porch with the good landlord; and among other things he explained that he was going away off because of a mean neighborhood where he had been living, and he had such a mean lot of people around him that he had broken away and was going to get away from the whole gang, etc. The wise landlord replied something like this:

"My good friend, I am sorry to be obliged to tell you that you will find the same sort of people where you are going now."

I cannot remember exactly the rest of the story, but it ran something as follows:

Some time later, another family with a covered wagon, the owner's wife and children and all his household stuff, etc., *also* stopped with this same landlord over night; and, as before, in the evening they sat on the same porch and talked over matters. This second man said nothing would have induced him to move had it not been for the death of a dear relative, and he was really obliged to go and look after a considerable property. He said he hated to leave the people and the neighborhood where he had spent all his life, because there were so many exceedingly good and kind neighbors, etc. Now, what do you think this good landlord said? Why, he said as before, or a little, as you will notice, something as follows:

"My good friend, it gives me much pleasure to assure you that in your new home you will find very much the same kind of people as those you have left."

I suppose this old story has been considered as a sort of joke; but this time the joke really contains a blessed truth. It is something inside of us and not on the outside that makes a neighborhood good or bad. You who have followed me in these Home papers for the past forty years doubtless remember many instances of where bad neighbors, or people whom some might consider bad, had turned out to be the best and kindest people in the world. It all depends, or at least largely so, on the way we treat people during this voyage we are all making from birth to death.

I am now going to tell you something that Mrs. Root would rule out if she could get hold of it before it comes out in print. Years ago I told you about our cabin in the woods, and the many attractive features in that wild place in the dense woods of North Michigan. After we had been there quite a spell, got our garden started, with flowers around the cabin, busy making the wilderness blossom like the rose, one day Mrs. Root said she was getting hungry for *woman* companionship. There were men and boys at work helping me grow my carload of potatoes; but she did not see any women-folks to gossip with, except at church and Sunday-school on Sunday. Then she began taking good long walks off by herself, calling on the different neighbors; and she used to tell me about the good and kind people she met here and there. They were a busy lot of people, especially during the springtime and summer; but they were very kind and good people. Down in our Florida home it is much the same way. She went so far off getting acquainted with the "women-folks" that one day she got lost and had to inquire the way home. For several years past we have had one very near neighbor—so near, in fact, that Mrs. Root and her good friend Mrs. Harrison could call to each other from their respective porches; and how these women did visit and enjoy each other's society! It made me think of David and Jonathan. But after the dear friend of several winters past had lived to a pretty good old age, God called her way. Some new neighbors were coming to occupy the vacant home, and Mrs. Root was wondering what *sort* of people they would be. I made up my mind (before I knew *who* was coming), although I did not dare to say it to Mrs. Root, that she would discover, as she almost always did, that the new comers were "just the nicest people in the world," and my prediction came true. Let me give you an illustration:

Our windmill is an automatic oiler; and away up in the air, above every part of the machinery, is a reservoir that holds about a gallon of oil. This needs replenishing about once a year; and I have been in the habit of climbing up over forty feet and clinging

to the machinery as best I could when I filled the tank. It is not at all difficult for one who never gets dizzy, unless a gust of wind should swing the vane so one might get pinched in the machinery; but Huber and Ernest have remonstrated so much about my climbing up there at my age that I rather hesitated. One morning when the machinery needed oiling, my new neighbor was hoeing in his garden just over the fence. As he is a young man, and remarkably strong and spry, I asked him if he would help me a little in my work.

"Sure," was his reply, and he was over the fence and by my side in an instant. He filled the reservoir and then helped Wesley dig some potatoes that were to be delivered at a certain time. When I undertook to pay him for about half a day's work he stoutly declared, "Not a cent, Mr. Root. After you and your good wife have done so much for us, it was just a real pleasure to know that I could in some way help you out; and furthermore," he said, "if at any time when you are up in your northern home, you want either one of us to look after anything on your place here, just keep in mind that it will be a great pleasure for us to attend to any such commission."

How is that for neighbors? I can say with David, "I have been young, and now am old:" and, like David, I have observed, and this one thing impresses me, that it is almost always possible to bring out the good and noble qualities of your neighbors if you do not become "weary in well doing." Keep right on: do not mind the scoffs and rebuffs and unpleasant words. Watch for an opportunity to make friends. Send over some little thing from your garden, or some flowers, fruit, or a section of honey.

I have several times mentioned an exceedingly good and kind friend, Mr. Henry Borchers, of Laredo, Texas. Laredo is just on the line between this country and Mexico. From this friend I get many glimpses of the Mexican people and of what is going on there. You may recall that it was Mr. Borchers who sent me the feterita seed, and the feterita bread and cake. He sent me also about a dozen of the spineless cacti, and finally some of the cacti confection—enough of it so that I took some of it to the prayer-meeting, passed it around, and talked to the good people there about the spineless cacti, the papaya carissa, jaboticaba, etc. Well, I assumed that friend Borchers would at least let me pay the express charges or postage; but he sent my stamps back again, and here is what he said:

Now, I don't want you to say anything about favors, as I am only too glad to do you a good turn; for what you are doing is the Lord's work; and as I am trying to serve him in every way I can, I feel that in helping you I am helping him. You are doing a wonderful work, and in any way that I can help you, *just command me*. I am at your service. I want you to let me know at any time if I can do anything for you down this way. I assure you it is a pleasure to me to assist you in any way.

You know I have had a great many kind words; but I believe the above, clipped from his letter, is not only about the kindest-word, but it pays me the highest compliment I have ever received; in fact, it is about the highest compliment any one *can* receive.

With the above good long preface I am going to submit one of friend Borcher's kind letters just received:

Mr. A. I. Root:—At last I am taking time to write to you and answer your questions as well as I can. I have been very busy, as the onion rush has been on in our section, and that turns money loose, and the people want bread. It makes business extra good for a while. It is also a very interesting sight to see the harvesting of the onions. There have been harvested so far about 2500 cars. Think of it—solid trains of onions leaving here daily!

You speak about Florida. I tell you, Mr. Root, Florida may have her crops, but Texas has hers also, and the onions I am writing you about are only from the Laredo section, Webb County.

Now, first I want to say about the alligator pear you wanted a few to taste. I am afraid that I can not get them for you, as one of the enclosed letters from the Department will show.

The larger avocado I may be able to get for you by special permission from the custom-house. They will be in the market across the river (Mexico) pretty soon now, as this is about the time for them, and trains are going to run again now to Monterey, beginning to-day; and just as soon as I can I will send you some—that is, if I can get permission to bring them across.

I am pleased to hear that you like the feterita seed, and will try it (boiling the whole grain) just as soon as I get some more.

I have taken some kodak pictures of the wild spineless cactus, with fruit only, as they have already finished blooming. They are not entirely spineless, but nearly so. Some have more spines than others. The people here use the fruit to eat, and also eat the young and tender slabs. They boil them in salt water about two or three hours until tender, and then cook them with eggs and a little onions, and some use a little red pepper. I have eaten them myself, and am very fond of them. The people here, mostly Mexican, use them during Lent, as that is the time the young leaves or slabs are plentiful. I believe you could also cook them like okra, and perhaps in other ways. You can also use the common cactus the same way; but it is quite a job to clean the spines off.

These wild spineless cactus, so far as I know, are only to be found in town here, and have been grown here for years. These pictures are all taken in back yards of the poorer population, and are not cultivated in this section for feeding stock—at least not that I know of; but the young slabs are sold in the market here the same as vegetables; and if they are still to be had I will send you a few.

The pictures (see page 549 and 550) of the common cactus were taken about seven miles south of Laredo near the Rio Grande. Some few were still in bloom, and I took a fairly good bunch of photos, all of which I enclose.

The picture of the young man on several is our minister (Presbyterian). This common cactus is

what we use for forage here, and you would be surprised to know how much of it is used. They build brush fires and singe the spines and feed it to stock. I buy it by the wagonload and feed it to my cows (I have three of them); and when I happen to run out, you don't know how much less milk we get. The stock will leave other feed to get the cactus. I am also sending you all the literature that I have received from the Department.

Have you ever found out anything about the beans I sent you (aba)? I wrote to the Department at the time I wrote about the avocado, but they entirely ignored my beans, of which I sent them a sample.

You ask me if I have bees and a garden. Yes, I have a garden in my back lot, but no bees. I take GLEANINGS only for the Home department, gardening, and the temperance section by A. I. Root. That ought to make you feel good. You are sowing the seed more than you think. Just let me tell you about something you did the other day. You gave my address to a certain seed-house, and I sold them over twenty dollars' worth of seed that I happened to have on hand (guada bean), and they made me an offer which I accepted; and when I received the money I sent it to the Anti-saloon League of Texas to help make Texas dry. Keep up the good work, and you will be surprised when harvest time comes.

About guada beans, that reminds me that I sent to my baker's supply house for some angelique for use in a recipe I asked; and what do you think? I received some guada beans done up like glazed fruit. There can be no doubt about it. I have it here, and will send you a piece of it. I am also going to send you some more cactus confection.

If there is any other way that I can serve you, let me know, and I shall be glad to do so.

If you ever come to Texas I want you and Mrs. Root to visit us. I began this letter yesterday, and just came back from town. I could not get any real nice cactus confection; but as soon as some fresh arrives from Mexico I will send you some. I am enclosing all literature and correspondence that I have from the Department, and want you to go over it carefully, especially that in regard to the tuna confection. I wish I could have been at your prayer-meeting and heard your talk.

Laredo, Tex., May 25. HENRY BORCHERS.

From the above it transpires that not only the fruit but the cactus slabs, when they are small, can be used for food. In regard to cactus plants for cows and other domestic animals, see article in last issue.

The aba bean mentioned above makes a most astonishing growth on our Florida soil. The beans are about as large as or larger than our largest lima beans. They are red in color, and grow on bushes two or three feet high.

"GETTING EVEN:" A COMPANION CLIPPING TO "THE DEFEAT OF INJUSTICE."

The following was also clipped from the *Sunday School Times* of a recent date:

GETTING EVEN.

To get even with one who has wronged us is to set down as low as he is. The more outrageous his injustice, the lower we shall have to go if we insist upon getting even with him. So "getting even" always leaves us worse off than we were before. If ever one man was unfairly treated by another, it was David, at the hands of jealous, unworthy, infuriated Saul. But when David's chance to get even came, he preferred to stay on the heights. To "revenge" ourselves is to return the sort of thing that was given to us. It is as though, having been cheated by counterfeit money, we wait for an opportunity to pass some of the counterfeit back to the cheat. No matter what we have suffered, we cannot afford to do that; for then we have been injured twice; and the second injury is far worse than the first. There is a better way of getting even with one who, in order to harm us, has descended to a low level. It is to stay above him in God's company, and by love to bring him up to that level.

Before considering the above, permit me to say that we have now printed and given away something over 20,000 copies of the little tract, "The Defeat of Injustice;" or, How to be Happy when People Abuse You." When I saw the editorial in the *Sunday School Times* about "getting even" it impressed me that it should be added to our little tract. By the way, one of my greatest temptations all through life, even since I became a Christian, is to "pay back in the same coin." Somebody has wronged me, or at least it seemed to me that way, and, rather than have a fuss or a jangle, I have "swallowed it down" and looked pleasant, and decided to let it drop like "spilled milk." But there is almost always a temptation to say to myself, "Some time when the chance comes" (and it almost always does come) "I will remember this." But a better spirit (and one that rejoices my heart to remember) almost always, or at least a little later, crowds out the ugly and unchristianlike attitude of mind; and this better spirit, the still small voice, says, "Forget that it ever happened, and treat this poor brother as if it had never happened." And this sort of treatment is what clearly defines and marks the true follower of the Lord Jesus Christ. The great outside world sees it, and at once recognizes the genuine coin. Dear brother or sister, whoever you are, and wherever you are, is not this the best way to get along in this world? And when you come to die, will it not brighten your last moments by remembering that you tried honestly and earnestly to "love your enemies and do good to them that hate you"?

STILL PREACHING AT THE AGE OF 112.

Our long-time friend Burdett Hassett, now of Alamogordo, N. M., sent us the clipping below:

TWELVE YEARS PAST CENTURY.

The Topeka *Capital* says that the Rev. M. A. Cox, 112 years old, is pastor of the Methodist Church at Almena, Kansas. He has been preaching for forty years. Before this work, he was a farmer. He hitches up his team and drives to church every Sunday, arriving in time to receive his congregation at the door. He is a native of Long Island, New York. His wife died when she was 101. He has been the father of eleven children, eight of whom survive. He has forty-five grandchildren and twenty-nine

great-grandchildren, and a raft of great-great-grandchildren. One of his grandchildren, living in Topeka, is the mother of nine childrden.

Attention is being called to the fact that, although the United States, and perhaps, for that matter, the whole wide world, is giving just now great attention to producing better domestic animals, nothing is being done, or comparatively nothing, in all the world, toward peopling the world with better men and women. The above seems to be a start in the right direction. If it is indeed true that this good man has been a hard-working farmer and a hard-working minister throughout all his long life, I venture to say that that great crowd of descendants are, at least for the most part, a blessing to the world.

HIGH-PRESSURE GARDENING

SWEET CLOVER: POSSIBLY A NEW VARIETY.

A little north of Medina, near our basswood orchard (on the premises of a cousin), while looking over a field of red clover I found here and there some stalks of sweet clover. This is not at all strange, as sweet clover is growing with great luxuriance all along the roadside ever since the road was paved with crushed limestone. This matter has been referred to before—namely, that lime or limestone is needed for all the clovers, especially sweet clover. Well, all at once my eye caught sight of a plant twice as high as any of the rest, with leaves three or four times as large as the other sweet clovers, besides being slightly different in shape of leaf and manner of growth. At first I thought it was not sweet clover at all; but on closer examination, and by crushing the leaves so as to get the peculiar sweet-clover smell, etc., I decided it was either a sport or due to some accidental extra fertility in the soil. I questioned my cousin, and asked him if it was possible that a dead animal had ever been buried there; but he thought not. About a rod away I found another but smaller plant having the same peculiar leaf and foliage. I cut off a couple of branches and sent them to our experiment station, and with it a letter explaining the circumstances. Below is Professor Thorne's reply:

Mr. A. I. Root:—I have yours of the 7th, and am much interested in your observations respecting sweet clover. I have referred your letter to Mr. Williams, who is looking after such matters, and he has no doubt that the plant you have found is a mutation, and that it would be well worthy of propagation. If you succeed in growing seeds from it, we shall be glad to receive a few seeds for further experiment. We think it more likely to be a mutation which may have permanent value than to be merely due to superior soil conditions around that particular plant. Of course, this cannot be determined without further experiment.

CHAS. E. THORNE,
Director Ohio Agricultural Experiment Station.
Wooster, Ohio, June 9.

I have just been down with a good sharp spade and hoe and cleared away the other weeds and clover for the distance of a yard or more all around the plant. I am going to give it careful cultivation, some lime, and possibly some stable manure; and just as soon as I can get seed ripe enough to grow I will plant it and try, if possible, to get plants that will winter over. The question is, Will these new plants duplicate the parent? If so, we shall have a new sweet clover. See pictures on pages 536 and 537.

Judging from the habits and appearance of this one plant it would furnish double the amount of feed, may be three or four times as much, as the old sweet clover. I may remark that we have just cut and cured two or three acres of yellow sweet clover, and we are planning to get a crop of seed. But we have been told the seeds will ripen evener if one cutting of hay is taken off during May. In our locality sweet clover furnishes green feed quicker than any other plant we have ever experimented with. If you will not accuse me of "counting my chickens before they hatch," I will say I am planning to give just a few seeds to any of our readers who may be interested in this promising new God-given plant to the children he loves and to the children *who love him.*

FETERITA—MORE ABOUT IT.

We clip the following from *Field's Seed Sense* for May, sent out by the Henry Field Seed Co., Shenandoah, Iowa. Although the clipping below comes, as I suppose, from an advertising catalog, it contains valuable instruction in regard to growing this new cereal; and, so far as my experience goes, it is just about right.

FETERITA THE IDEAL CHICKEN FEED.

Incubator Johnson certainly started something when he mentioned in his circular that now would be a good time to plant feterita for chicken feed and save the high-priced wheat.

You know I have been growing and selling feterita for two or three years, and am very enthusiastic about it, and knew that it was splendid chicken feed, but I never thought to mention it. I guess I just took it for granted that everybody else knew it too, and, furthermore, I never got it through my head how hard it was going to be for the women folks to

get wheat to feed their chickens now that wheat is selling at $1.50 per bushel. I might have known, too, if I had stopped to think. Any way, Incubator Johnson, who is mighty good authority on chickens and their troubles and needs, mentioned in his circular that every one ought to plant a little patch of feterita for chicken feed and save the high-priced wheat, and I guess we have had 1000 letters about it in the last six weeks.

As usual, Incubator Johnson is absolutely right. Feterita is just made on purpose to feed chickens. It is the ideal chicken feed in every way. It is a better-balanced ration than corn or wheat. Chickens will eat it greedily, and will thrive on it. It cannot hurt the chickens in any way. It is just the right size for them to eat; and if you want to you can throw it to them in the head and make them scratch it out. It will keep all winter like wheat or corn.

The best thing about it is that anybody can grow it in any part of the United States. I don't suppose there is a state in the Union where you cannot grow feterita. It is as early as the very earliest hardiest field corn. It will mature easily in from 75 to 90 days of summer weather. It will yield more than field corn; even under unfavorable conditions it will make a good crop where field corn would make an absolute failure.

It will stand more drouth than any other crop I ever saw. Down in Oklahoma, in the dry weather they made a good crop with it with only five inches of rain for the entire summer, and only one inch of rain between planting and heading.

It should be planted in rows like field corn—just about the same distance in the rows—that is, one seed to every five or six inches in the row. This may look thin, but it is the best way to plant it. If you sow it thick it will make very little grain and lots of fodder; but if you get about one good stalk every six inches in the row, and the rows three to four feet apart, every plant will make one big head and three or four small ones, and a big head of it means about a pound of grain.

It should be planted later than field corn. This would mean anywhere from the middle of May to the first of June according to your climate. If you are in the habit of planting field corn about the middle of May, then wait until about the first of June to plant the feterita, or until the ground and weather are thoroughly warm. Don't plant it too deep. It should be planted shallow—never more than an inch deep.

It should be cultivated just like field corn or sweet corn, or any other similar crop. It can be hoed or tended with a horse.

It heads very rapidly, and is ready to harvest in August or September. The best way to do is to go through with a knife and cut the heads off and carry them out just as you would ears of corn. Pile them up in a corn-crib or granary, or some such place, where they will be dry, and they will keep just like ear corn. The fodder is as good as corn fodder, and can be cut and shocked the same way. It makes splendid cow feed. You will need about five pounds of seed per acre, although some people get along with as little as three pounds. It depends on how careful you are in planting it.

It is somewhat similar to kaffir corn, but is better on account of its earliness, heavy yield, and its extreme drouth resistance. It will stand more drouth than kaffir corn, will make a heavier yield, and on account of its earliness can be grown much further north or northwest. It is better than shallu or Egyptian wheat for the same reason. It is earlier and heavier yielding than milo maize, and is much better than field corn, because it will stand much more drouth and will do better in small patches. It will grow on any soil, no matter how thin, but will make the best yield on fairly rich soil.

Here is what a customer in Oklahoma has to say about feterita:

"Well, Mr. Field, I guess I know just about as much as any farmer about feterita. It is the best all-around crop ever planted in Oklahoma. I have raised three crops of it. It will average about 50 bushels to the acre, one year after another, but I think 100 bushels or more can be grown on one acre under favorable conditions. The main thing is to plant it very shallow; ½ inch is plenty deep. It is the best crop a lazy man ever planted. It will yield more without rain or cultivation than any other crop you can plant."

CASSAVA, DASHEENS, AND PAPAYA.

On page 471, June 1, our good friend Thompson wonders if their manioca is identical with our cassava; and at the time he wrote that letter he very kindly sent me a package of cuttings of their manioca. They were at once turned over to my good neighbor Harrison, who lives close by our Florida home. Here is what he says about them:

Mr. A. I. Root:—The feterita is as tall as I can reach. Nearly all has headed. Another papaya is turning yellow. The canes that came from Africa have begun to grow. Five leaflets are in sight, and one is three inches tall. I will see to transplanting when they are ready and we have a good shower. We are enjoying the abundance of little yellow pear tomatoes. C. L. HARRISON.

Bradentown, Fla., May 26.

In regard to the pear-shaped tomatoes mentioned above, permit me to say that the finest tomatoes we grew last summer here in Ohio—in fact, it seems to me the finest tomatoes I ever tasted—were some yellow pear-shaped tomatoes. The vines ran all over the garden like cucumber-vines; and under the stimulus of plenty of manure they produced tomatoes almost as large as small hen's eggs. They just made the ground yellow. I took some seeds down to Florida, but they did not grow as large nor as fine as they do here in Ohio.

Below is a letter from a good brother in regard to the papaya fruit in Cuba, etc..

Mr. Root:—I have read for some time with interest all you have written about your Florida farming. In the April 1st and May 15th numbers you mention the papaya, which, being so common here, I wonder if we could not give you some ways to use this exceptionally fine fruit that you have not tried; at any rate, there will be no harm done in telling what we do with it.

Of course, when ripe you know how fine it is, eaten like any northern cantaloupe, with salt or sugar according to the taste. Before it is ripe, and while still quite green, or, rather, all green in color, peel and slice the meat and prepare as you would an apple for sauce, adding some lemon or lime juice or other fruit juices if you prefer; but with the lemon the sauce thus prepared can hardly be told from the real apple article, and in pies is very fine, or, made into shortcake, equally good. When well ripe, if peeled and the meat run through a colander, then handled same as pumpkin, it is hard to tell the difference. We have had many tourists come here who would discover a pumpkin in their rambles, and, of course, want a pie; and after they had carried the pumpkin to the house we would substitute the papaya without their detecting the substitution.

Our trees must grow larger than yours. I have seen them here 25 or 30 feet high, and a foot through at the bottom. This morning in riding

across the country some 25 miles from my place I saw a tree in a Cuban's yard that had over 50 fruit on it. Three years ago I had a friend who planted many of the papaya-trees in order to sell the fruit. He had a seedless variety, and they were very large and much nicer-flavored than the ordinary, I thought. I don't know where they came from, as I had never seen any like them before or since, but could no doubt find out very easily, as he is still in Cuba. I have the papaya-trees planted this year 8 feet apart in front of 300 colonies of bees at this place. I believe they will give me ample shade, and at the same time not interfere with working around them. In Mexico they sear the skin when green, and a white milk collects and crystallizes, and this is sold, I believe, to Park Davis & Co., for making some kind of stomach medicine. The dry crystals, I believe, are worth about $40 per lb. This is what I was told, but cannot vouch for the truth of it. The chickens and pigs seem to like the papaya very much; but what value as a food for such animals it has I do not know. The male trees do not bear fruit here.

We hear much about the dasheens of Florida, and from the pictures and descriptions have often heard it said they were the same as our malanga. There are two varieties, but one is not edible. The potatoes are the only part ever eaten here to my knowledge, and then but seldom, although the malanga grows in most yards among the Cubans. Perhaps when you again go to Florida I might send you some things we have here wild that are new there, and would be very glad to do so if you would be interested.

Holguin, Cuba, May 23. D. W. MILLAR.

Many thanks, friend Millar, for the information you give us. I knew that a medicine was prepared from the papaya fruit, but I did not know before how they managed it. I am pretty well satisfied that the fruit when dead ripe is a help to good digestion. There are trees in Florida very much larger than my own; but as they are sensitive to frost, unless when near water, they are often cut back. In regard to the *male* trees not bearing, a missionary in South America who visited our garden told me they did *sometimes* bear, but that the fruit from such trees was on the end of a long string or cord; and we had about half a dozen such fruit on one of our trees. The fruit does not look like the one pictured from the female tree. I also saw the malanga during the winter I spent in Cuba; but the quality of the tubers was very much inferior to our Trinidad dasheens.

My good friend, I am exceedingly obliged to you for your kind offer; and if you *can* send me a little plant of the seedless papaya, or one that is nearly seedless, I would pay almost any price for it.

HEALTH NOTES

"FLUID ENSEROL" AND THE VALUE OF BORACIC ACID FOR THE EYES, EARS, ETC.

On page 742, Sept. 15, 1914, I gave my experience with the so-called fluid enserol. Below is a letter in regard to the same matter:

Mr. Root:—A good many years ago my father worked in the boiler-works and lost his hearing, and was not able to hear unless a person was quite close and raised his voice very high. About a year ago last fall he received this booklet, "A Woman's Story," and sent and got the prescription filled, and started to use it early in the fall, and continued to use it all winter. Along in the spring we were sitting on the porch waiting for supper when mother spoke from the kitchen and said, "Supper is ready." He turned to me and repeated it; and as she was across two rooms from us, and spoke in an ordinary tone, and I had barely heard her, I asked him if he had heard her say so, and he said he had; and then he took out his watch and could hear it tick in one ear. That was the first time he had heard a watch tick for *25 years*, and he was much pleased over it, I tell you. But it did not last long—only a few days, and then he was worse than he had been before. But he had faith in the medicine and kept on using it; and after a couple of weeks his hearing came again, and he could hear so well that it hurt him; for if he was near the railroad he had to hold his hands over his ears; and while driving along the road, and the wagon would rattle, he would get off to see if something was wrong, as it was so loud to him. Soon his right ear quit again; but he can still hear well out of his left, and can hear an ordinary conversation in a room or outdoors ever since; but his right ear is still deaf. He still uses the medicine, but it is so old he is going to get some new, and feels that it will fix that one ear up too.

There are hundreds of people who can verify all this, and a good many are using this medicine after seeing what it did for him, and some have been benefited already, while others are still using it. Now, if Mr. Root is hard of hearing, or any other person, I would advise such to use this and not despair, as I feel sure it will fix them if they keep right on long enough.

It was fully six months before it helped father; but it stopped the noises in his head in a few weeks, and he says that was worth all the money invested, because the noises were awful all the time. He compares them now to a big storm coming up roaring through the woods, and he never heard these storms until after he got to hearing things.

Springboro, Pa., March 9. FRANK P. DORR.

I am exceedingly glad to get the above, for it verifies what I suspected before, that boracic acid, very much diluted, of course, is an excellent remedy for eyes and ears. In fact, I believe this is well known and well recognized by medical men for years past. Our friend who writes the above speaks of noises in his father's ears, which he endured while the deafness lasted. This reminds me of something I had forgotten to mention. There are times when I hear a roaring, something like the cars coming or a storm far away. Here in Medina I have often asked Mrs. Root if she heard a roaring. Of course she did not. The use of

boracic acid in the ears of the patient cleanses them more effectually than soap and water or anything else I have ever tried. Some time ago I told you about using it for an inflamed eye; and I see it is frequently mentioned in medical journals or in articles on medicine. Now, here is a point, however, that must not be lost sight of. I paid $1.25 for an ounce of this fluid enserol that did not cost more than a few cents. To keep the matter before us I have been examining druggist's wholesale price lists, and I see fluid enserol quoted at 85 cts. an ounce.

It indicates that a big lot of the much-advertised patent medicines are only common well-known remedies with some fictitious name tacked on to them. In the magazine called *The Good Health Clinic,* for May, a list of about twenty advertised medicines are given, and I think the list was taken from *Harper's Weekly.* Here is one of them:

Murine—once a "cure," but now a "remedy" for sore eyes; a plain boracic-acid wash. Sells for $1 an ounce, and can be made for about five cents a gallon.

You will notice this "Murine" is the same old boracic acid under a different name—the dollar-an-ounce medicine that can be made for five cents a gallon. Here is what the editor of the magazine says in regard to it:

These well illustrate the "Two Biggest Frauds on Earth"—the fraud that takes $1.00 of a man's money for what costs one cent and the fraud that gives him the expectation of the relief and cure of his diseases by way of some drug poison—and the common name of both these frauds is "Medicine."
E. E. K.

While we are about it, I wish to make just one more clipping from this list of medicines or foods. It is in regard to our old friend sanatogen:

Sanatogen, "the life food and nerve tonic"—just plain ordinary cottage cheese prepared in powder form.

Here it is again, a dollar a bottle for cottage cheese which is sold in our Medina markets for 10 cts. per lb., and at the same price away down in our Florida home, and probably all over the land. It is, as is well known, a very wholesome and concentrated article of human food. No doubt it helps many people who have not been accustomed to use or get acquainted with cottage cheese, and may be it will do more good because it costs a dollar a bottle than if they got it for 10 cts. per lb.

In closing, just a word to our friend who has trouble about hearing. Go to your druggist and get the remedy, and use it as described in the journal referred to, for last year. But instead of paying $1.25 an ounce for enserol, go to your druggist and get some boracic acid. He will tell you about the quantity of it to use to make it good both for eyes and ears.

And there is something else you should keep in mind: It is not positively *sure,* although it is quite probable, that this man's hearing was restored by the enserol. If you look about you, you will find that old people frequently get back their sight—yes, and in some cases hearing also—without taking any medicine whatever. A few days ago I was surprised and delighted to note that I could read an ordinary newspaper while standing outdoors, without my eye-glasses. Now, had I been taking some sort of "treatment" in order to see without the aid of glasses I might have been ready to swing my hat and give a big testimonial.

TEMPERANCE

GOD'S KINGDOM COMING.

I am surprised at you, brother Root. If you were a young man, and had no personal knowledge of how the Devil has been licked over and over for the past seventy years or so I could account for your pessimism. I am only 42; but I have seen so many unexpected public reforms occur in my lifetime that I think amazingly rapid progress has been made. Perhaps your article in your June 1st issue means you become discouraged only over the liquor-traffic. You say, "We get *answers to our prayers in everything except in regard to the liquor traffic.*" Now, do you not think you really ought to ask the Lord's forgiveness for such an incorrect statement when you stop to think of how even the preachers drank, and an active prohibitionist was about as welcome in a church as skunk in a beehive? At least that is what the historians tell us; and even within my own memory drinking church-members have left my own denomination, the Methodist, for some more liberal on the liquor question. But to-day they find that all the denominations denounce them; and when we look at the diagram maps the Anti-saloon League issues from year to year, and see how the black spaces have been so marvelously reduced (indeed, they have to print new maps oftener than once a year to keep up with the progress), I feel like shouting "Hallelujah!" that I should live to see this. Think of the early temperance reformers. My grandfather was a Washingtonian. I suppose they get the election returns in heaven; and if they rejoice so much over one sinner that repenteth, they must be singing a mighty chorus as, month after month, the reports come in of whole states and even whole nations driving out the liquor saloons.

If, even in the darkest hour, God is able never to leave himself without witnesses, and has at least seven thousand who refuse to bow the knee to Baal, why should any one become discouraged when we

lift up our eyes and see the fields white for the harvest with more than seventy times seven thousand added to prohibition territory every few months? What must those women who started praying in saloons with their crusade so many years ago think as they see the changed conditions of to-day?

We are living, we are dwelling,
In a grand and awful time,
In an age on ages telling—
To be living is sublime!

In the very same mail with GLEANINGS comes the June 4th issue of the *New Republic,* and I see the big Brunswick Balk-Collender Co., the *largest manufacturers* of bar-fixtures in the United States, has quit the business, and sent its formal notice that "We will discontinue the line absolutely." Why, your statement about the Lord not answering prayer for victory over the saloon sounds to me almost blasphemous after reading a newspaper item like this. But that is not all. On the next page is another item saying that in Ohio under the glorious privilege of the initiative and referendum it is so blessed as to enjoy, the Anti-saloon League has more than 200,000 signers on its petition for statewide prohibition; and the question will be voted on next November. Praise the Lord for Ohio's initiative and referendum! I most earnestly pray that the enemies of God who have so long held Indiana in political slavery without the rights of freemen that exist in the other states of our country, shall by some means be overcome, and that we too can get the initiative and referendum. When we do, then we too can submit the question of statewide prohibition. Until we get the initiative and referendum our case is hopeless. We asked the legislature last winter to submit the prohibition question, but as usual the request was refused. Of course the people's vote must be campaigned, for even under the initiative and referendum the people may vote down prohibition; but the initiative and referendum gives the chance to make a campaign for prohibition, and we can get that chance no other way. GLEANINGS ought to boost the initiative and referendum at every opportunity because it helps prohibition.

Greencastle, Ind., June 4. DANE S. DUNLOP.

My good friend, I own up and stand rebuked; but at the same time I wish to explain that when I referred to prayers unanswered I had in mind the matter of license and revenue, which Lincoln consented to under protest. While the people of the United States knew exactly what he said and what he meant, this "shame and disgrace" to the American people has been permitted to go on year after year *for forty years,* notwithstanding our prayers and protests. Our innocent wives and children have suffered and starved for forty years just because the common people, such as you and I, were afraid to stand up and *demand* that this Achan, with his wedge of gold, should be cast down and out. Yes, we have abundant reason for thanksgiving, for "God's kingdom is coming," even if it has taken us long years to wake up and *work* as well as pray.

While we are considering this matter, I notice that Dr. Miller says in Stray Straws for June 15, "I plead not guilty." That is true, doctor, and we rejoice over it; but, notwithstanding, it is true that *we Americans* have *permitted* this thing to go on for over forty years.

IOWA'S EMANCIPATION, ETC.

The Iowa legislature has just passed a law repealing the "mulch law," also a resolution submitting an amendment to the constitution of the state, allowing equal suffrage. As most people know, Iowa had statutory prohibition; but owing to non-enforcement thereof it was unsatisfactory, and what is called the "mulch law" was passed some twenty or more years ago. This "mulch law" provided that certain communities, generally counties, could, by circulating what became known as "saloon consent" petitions, disregard the prohibition law, provided a certain per cent of the voters signed it. The number of saloons was limited to one for so many of population, and the license was, I think, left to be fixed by the city authorities where the saloon should be allowed.

In communities where the foreign-born population held the balance of power, as they do in some parts of the state, the "mulch law" was an improvement in practical results over prohibition, for in such communities prohibition was a dead letter, and booze was free and uncontrolled. But the saloons near the edge of the "wet" territory were always a curse to the adjoining "dry" territory, because it is so easy for those so disposed to go by team, by auto especially, and by train, and, after filling up themselves, bring back some in jugs and bottles. "Stolen waters are sweet," so that liquor, thus obtained, no doubt tasted better to some than if they could step into a saloon any time at home and get a drink.

Billy Sunday held meetings in Des Moines last fall. After that, if I mistake not, an "anti-saloon" petition went around, and Des Moines went "dry;" then the drys got busy in the legislature, with the result as stated. There is a strong prospect this time of the legislature making extra provision to *enforce* prohibition by state marshals appointed so as to be independent of local sentiment. There is a statewide demand for *enforcement,* which is what prohibition has always needed, and lacked in so many instances.

It is commonly expected that equal suffrage will carry. Prohibition goes into effect Jan. 1, 1916.

Dunlap, Iowa, March 9. E. S. MILES.

GOD'S KINGDOM COMING.

From the Cleveland *Plain Dealer* I clip the following heading:

DRYS WIN OUT IN EAST CLEVELAND, CAST 1543 VOTES FOR PROHIBITION UNDER BEAL LAW; 212 AGAINST.

I submitted the above to Ernest, and asked him what it meant that a part of the great city of Cleveland should give such an astounding majority for prohibition. He said one reason for it was that *East* Cleveland is made up mostly of resident districts, and that, no doubt, even the saloon-keepers and brewers *themselves* do not want saloons in the vicinity of their homes.

THREE CHEERS FOR ALABAMA; GOD'S KINGDOM COMING.

The Alabama Supreme Court has declared constitutional the law forbidding papers or magazines to print advertisements of liquor. This is important, because it deals with the right of the public to determine what a paper shall print. The point was that, so long as the liquor interests could advertise largely, they could control the policy of the newspapers.—*Rural New-Yorker.*

JUL 23 1915
Agricultural College

Gleanings in Bee Culture



Vol. XLIII JULY 15, 1915 No. 14

Southern Headquarters for Italian Queens



Photo of W. D. Achord of Fitzpatrick, Ala., with helpers, also his queen-rearing yard. Queen-house and residence in background. With six experienced men, and 600 mating-boxes, also 700 full colonies of pure Italian bees, we are able to give good queens and prompt service. Untested queens, 1 to 11, 50 cts. each; 12 and more, 45 cts. each. Tested, $1.00 each. No disease, pure mating and safe delivery I guarantee.

W. D. ACHORD, Fitzpatrick, Alabama

Broadway Central Hotel

667 to 677 Broadway New York

The oldest, most comfortable, and most ECONOMICAL Hotel in the East. . .

Room with Privilege of bath $1.00 per day

Largest and best Sample Rooms in the City

DAN C. WEBB
Broadway Central Hotel

Hotel Warner

Overlooking Lake Michigan—Homelike Surroundings

33d Street, Cottage Grove Avenue, and Groveland Park

CHICAGO

Wabash Ave.—Cottage Grove Car Line Direct to Business and Amusement Center—20 minutes' ride

320 Rooms
200 Private Baths

Rooms with Private Baths at $1.00 per Day

2 and 3 Room Suites with Bath $2.00 to $3.00 per Day

First-class Restaurant at Moderate Prices

Table d'Hote Dinner 50c

Chicago's BEST Hotel at the Price

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

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VOL. XLIII. JULY 15, 1915 NO. 14

EDITORIALS

A New-old Method of Swarm Control that Promises Much

In this issue, on page 573, the reader's attention is directed to an article by Chalon Fowls. If the reader can wade through our long introductory he will see there are certain references in connection that will be worth his while to go over carefully, especially if swarming in season and out of season is one of his troubles.

Our columns are open to a full discussion of the subject, and we hope many questions will be asked.

Chocolate Honey Candies

Mr. Edward Hassinger, on page 531 of our last issue, speaks hopefully of making honey confections by coating granulated comb honey, and ordinary comb honey not granulated, with chocolate. Apparently he has not made a success of the idea. We may say for his information that quite a number of beekeepers have done it, including the A. I. Root Co. We have sold granulated extracted honey and little chunks of comb honey covered with chocolate. There is no trouble about doing this if one understands the art of making candy or handling chocolate. These honey chocolates are very fine. The only objection is, they are *too* good. They are so concentrated a sweet that one can eat but a very small amount.

Politics and Wire Pulling in Pennsylvania

It will be remembered that there was some prospect that the State of Pennsylvania might appropriate $50,000 for bee-inspection work and to carry on apicultural investigations. This was finally whittled down to one-tenth the amount, or $5000, and at the last moment this has been cut in two, or $2500. This, however, will be a good deal better than last year, and we suppose the beekeepers of the state will have to be thankful for what they got; but at the same time it is not enough to cover the state. If the governor wishes to promote agriculture he must commence with the most neglected branches, and he must see that enough money is given them to insure their proper development.

The Apicultural School at St. Paul, Minnesota

The apicultural school that has been doing such good work under Prof. Francis Jager, at St. Paul, Minn. (see page 541, last issue), is to have another man to help in the person of Mr. L. D. France, of the University of Wisconsin, in the capacity of assistant professor of bee culture. The Frances are all expert beekeepers; and the young Mr. France, son of N. E. France, many years General Manager of the National Beekeepers' Association, and foul brood inspector of Wisconsin, will be well equipped for taking up the practical as well as the scientific end of the business.

Newspaper Men Eat Honey

An "All-Oklahoma Dinner" in which Oklahoma honey figured prominently was that given the State Press Association by the A. and M. College at Stillwater last month. Rev. R. S. Satterfield, Pauls Valley, owns the apiary which produced the honey. Mr. Satterfield is vice-president of the State Beekeepers' Association.

The banquet meats, flour, salt, grape juice, ice cream, peanuts, and even the waitresses, were all Oklahoma products gathered within the state boundaries by the committee from the college faculty in charge of the dinner arrangement.

It was, of course, impossible to ignore the position of the honey as a prominent Oklahoma product.

Here is more Sweet-clover Publicity

"Sweet Clovers. Some Facts of Interest about this All-around Forage Crop and Soil Renewer," is the title of a 30-page illustrated booklet just off the press.

A member of the GLEANINGS editorial staff has simmered down the information in the national and Ohio bulletins on sweet clover and in the pamphlet, "The Truth About Sweet Clover," written by A. I. Root. The writer has added some new information which has been brought out of late in farm magazines and in GLEANINGS.

The wide adaptability of sweet clover, its value as a soil-renewer, its usefulness as pasture and hay, and the methods of securing a good stand, have been featured in a logical and readable manner.

To individuals making application we shall be glad to send these booklets for one cent to cover postage. Organizations can secure them in reasonable quantities free of charge by giving the name of the president and secretary and stating the number desired.

Fire Damage of $15,000 to R. G. Coombs

IT will be remembered that some time ago a brother-in-law of Earl M. Nichols, Mr. Herbert F. Cary, of Lyonsville, Mass., a dealer in beekeepers' supplies, was killed in an automobile accident—p. 878, 1914. The death of this brother-in-law handling another line of their business made it necessary for Mr. Nichols, his partner, to give up the bee supplies, and he sold out to Mr. Robert G. Coombs, of Guilford, Vt. Since then, Mr. Coombs, on June 22, suffered the loss by fire of his factory building, containing some $15,000 worth of bee supplies. In the mean time, he himself was taken down with appendicitis. Fortunately the fire did not cause a total loss, as some of the goods were stored in a private dwelling. Nothing has been said as to whether the property was covered by insurance. In the absence of any statement to the contrary we assume that it was, and that the business will be taken care of as formerly as soon as Mr. Coombs recovers. Further particulars will be given later.

How Advertising Confidence is Created

FROM breeders of bees and queens who seek to use the advertising pages of GLEANINGS we have been expecting certain explicit information regarding their plans and ability to back up their promises with performances.

We have been requiring to know of every one taking space in our columns how large his yard, the quality of his stock, when he expects to make his deliveries, and especially have we required reliable information regarding the character of the advertiser and his ability to refund promptly money which has been placed in his hands for certain orders.

The difficulties of the queen business in this country are almost as great as those of the king business in Europe.

For the protection of subscribers, therefore, it is only fair that we scrutinize the promises so closely. Since this reacts favorably on the value of the advertising itself we are not surprised to receive numerous letters in the vein of the following from a well-known firm of queen-breeders:

> Permit us to express our most sincere esteem of your firm. The stand you are taking in refusing advertisments in GLEANINGS has increased our estimation of that periodical more than we can tell you.

Advertisers recognize that the appearance of their announcement in GLEANINGS IN BEE CULTURE is itself a credit rating. Buyers understand this, and are ordering in confidence.

Moving Bees in Carlots from North to South Not a Financial Success for Honey Alone

ELSEWHERE in this issue, page 587, will be found a report by E. R. Root, of moving bees from north to south. It is much easier for one to tell about his successes rather than his failures. Perhaps in this case we should refer to what has not been a great success. While we have not lost anything in moving bees from south to north we cannot say that we have made very much money at it. The railroad companies charge so high a rate on bees, plus the railroad fare of the attendant, that they will shut out migratory beekeeping on a large scale. It cost us nearly $2 a colony to move a carload of bees from the North to the extreme South, and of course it costs as much to get them back. It goes without saying, that no man who is working for honey alone can afford to take the chance. Even if he can get three dollars' worth of honey in the South, and three dollars' worth again in the North, after the bees are moved back, he would hardly get enough to pay for his own time, for the simple reason that he would have to pay out two-thirds of his gross proceeds for transportation alone. But it is quite a different proposition when one moves bees south for making increase, and then sells the bees at a fair price on arrival back north. If he can secure a crop of honey while in the South, he is so much ahead. From the first two cars we did this; from the two cars last year we didn't; but from the two cars this year we may do it again.

Clover Prospects and Honey Crop

It has been a most peculiar season so far. A comparison of the weather maps seems to show that conditions at Medina have not been materially different from other clover localities in the northern and central states.

We would have one or two days of bright sunshine and warm weather, during which the bees would rush out on the clovers—alsike, white, and sweet. Later on came the basswoods that yield heavily in the morning; and just as the bees would get to the point where they would begin to fill their combs, rain or cold weather followed. This program of two days of good weather followed by two days of cloudy, cold, or wet has been re-enacted back and forth for nearly six weeks. Fortunately the copious rains every three or four days have delayed the cutting of the alsike in the fields, and given a new growth to white clover and sweet clover. Notwithstanding white and alsike have been in bloom for five weeks, there are at least two weeks in sight of abundant bloom at this date, July 9. Basswoods are out in all their glory. They never yielded a heavier bloom if we could only get the weather. Notwithstanding these diverse conditions our hives are filling up with honey, and stronger colonies are storing a little surplus.

If Medina and vicinity are any criterion there will be some clover honey, both comb and extracted. If we could have two weeks of favorable weather, 1915 might go down as a real old-fashioned clover year. At present writing no one can make an accurate forecast. But it is safe to say there will be some clover and of a fine quality. Whether the general aggregate crop over the country will be light, medium, or heavy, is yet to be determined. It will be medium in some localities and light in others. In some few favored spots there will be a heavy yield of basswood, and clover, for this appears to be a basswood year.

Conditions have not been entirely favorable for alfalfa honey in the Rocky Mountain regions; but as those localities always furnish some honey, it is probable there will be from a light to a fair yield of alfalfa, both comb and extracted. The cheaper grades of honey, including the ambers, will not be as much in evidence this year as last. Indeed, the crop will be light. We are assured now of at least a light crop of sage in parts of California and of alfalfa in the Rocky Mountain districts, and a light crop of clover in some of the clover districts of the North.

Prices ought to be reasonably firm. There will probably be no great glut of honey of any kind, this year. What there will be, will be confined to table quality that ought to find a fair market. Those who were wise enough to run to comb honey will have no trouble in disposing of it at fair prices provided it is No. 1 to fancy; but those who continued to produce only extracted will have to watch their chances to get best prices. These are usually secured early in the season.

Later, July 13.—Since writing the foregoing, conditions for honey production have improved very materially. The weather has turned hot and remained hot. Honey is now coming in at a rapid rate—very much better than it has been doing before.

Reports from over the country so far show that one-third indicates a good crop; one-third, from one-half to a fair crop; and one-third show a short crop or none. Early reports were less favorable than those that came in within the last few days. It would not be surprising if there would be a good yield of clover and a little basswood throughout the north-central states. There is at least two weeks of clover in sight.

The Most Eminent Pennsylvanian

THE editors of papers and periodicals in Pennsylvania have been asked by Governor Brumbaugh to name the most eminent Pennsylvanian. As GLEANINGS IN BEE CULTURE reaches several thousand readers in the Keystone State we feel that we at least have a right to interpret the Governor's invitation as applying to our knowledge of the men in that state.

Persons engaged in any business become accustomed to thinking in the terms of their business; and those who are devoting their attention to certain lines of activity or specialty become better acquainted among themselves and with others within their specialty than they do with persons in other professions.

In the apicultural field there is one in Pennsylvania that stands pre-eminently first, and this statement reflects no injustice on the tens of thousands of bee-keepers in that state. They themselves have for over ten years regularly re-elected Prof. H. A. Surface, State Zoologist, of the Department of Agriculture, as president of their State Bee-keepers' Association. He has written a bulletin on beekeeping in Pennsylvania, which is accepted by them as authority for both theory and practice. He

is known as a practical worker as well as a thinker, writer, and speaker. No one who knows of the development of beekeeping in Pennsylvania and of the effort to preserve this industry from the destructive attacks of bee diseases will fail to say at once that Prof. Surface has been preeminently most conspicuous in this work. Not only is he known in Pennsylvania, but also in other states.

After an address before the New York State Beekeepers' Association the authorities of that state wrote him that the beekeepers for whom he had spoken had voted his address as the best that was given, and they desired notes from which it could be published; but as it was extemporaneous, and its merits were in part due to the stimulus received from a sympathetic audience, it was, unfortunately, impossible for them to procure it and preserve it in printed form.

We have so many different lines of eminence that we cannot speak for all; but it is certain in our mind that if the 25,000 beekeepers in Pennsylvania could vote for the most eminent man in their profession as well as the one who has been most active in other lines of agriculture, and who is best known for his general agricultural service in that state, it would be practically unanimous for their State Zoologist, H. A. Surface. We therefore take pleasure in presenting his name to Governor Brumbaugh for all honors and opportunity that can be accorded him.

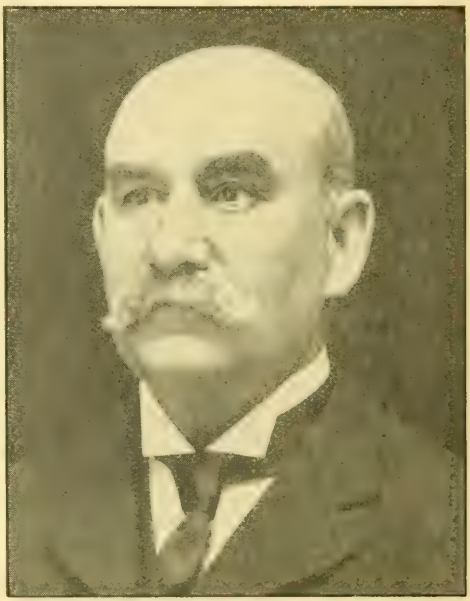
Death of A. E. Manum

In the early 90's we visited Mr. A. E. Manum at his home in Bristol, Vt. He was at that time one of the most extensive beekeepers in New England if not in the whole United States. We were so well pleased with his swarm-catcher that we introduced it to the public, with the result that from that time to this it has been sold by practically every supply dealer in the United States. He was not only an extensive beekeeper in those days, but his influence extended far and wide to such an extent that beekeepers throughout his state adopted his hives and fixtures.

In late years the beekeeping world has lost track of him. It appears that the cutting of the basswoods, that had been almost his main stay, and the failure of clover caused him to go out of the business some ten or twelve years ago. For the last thirteen years he has been in Pasadena, Cal., where he spent his time in raising fancy poultry and eucalyptus lumber. The news has just reached us that he died in Pasadena, June 26, at the ripe age of 77. Thus another one of the old veterans has passed over the line.

W. T. Falconer

In our issue for June 15, page 477, we gave a preliminary announcement of the death of W. T. Falconer, of the W. T. Falconer Mfg. Co., so well and favorably known to beekeepers all over the United States. Mr. Falconer, besides being actively engaged in the manufacture of beekeepers' supplies, was connected with a number of other large enterprises in the capacity of president, officer, or director. From a newspaper clipping announcing his death, it would appear that he was a



THE LATE W. T. FALCONER.

public-spirited man, well known and loved by all who knew him. In a business way we found him to be in every way a gentleman—fair and square, even though he was a direct competitor.

He started originally with his father at Falconer, N. Y., in the manufacture of sash, doors, and blinds. Later on he took up the manufacture of beekeepers' supplies, and finally became president of the W. T. Falconer Mfg. Co. Later on he took up the manufacture of rules and some other advertising novelties. In this he was very largely engaged. He was

connected with the Gurney Ball-bearing Co., Chautauqua Woolen Mills, the New York Oil Co., Chautauqua County Bank, and the Jamestown Street Railway Co., all of Jamestown, N. Y. Besides this he was actively identified with various fraternal organizations, and a member of the Jamestown Club. At the time of his death he was 65 years old, having rounded out an activity both in business and social circles that few men are capable of undertaking, and of which any man might be justly proud.

As we stated in our issue of June 15, the policies of the W. T. Falconer Co. will continue as before. In 1910 the firm was incorporated, and Mr. A. C. Davis, a son-in-law of Mr. Falconer, took up the active interests of the concern.

A Massachusetts Summer School of Beekeeping

What is, perhaps, the first itinerant school of beekeeping is to be held the first week in August by the Massachusetts Agricultural College, the Essex County Agricultural School co-operating.

This school is intended to be of help not only to the professional beekeeper but to market-gardeners, fruitgrowers, growers of cucumbers under glass, managers of estates and institutions, etc.

Of the instructors, Mr. Geo. W. Adams is a prominent beekeeper of Essex County, with an experience of years. Mr. F. L. Davenport is an instructor of the Essex County Agricultural School, and has charge of the beekeeping work there. Mr. Fred A. Smith is director of that school, a man well versed in beekeeping. Mr. Gladstone H. Gale is a deputy apiary inspector in Massachusetts. Dr. Burton N. Gates is head of apicultural work in Massachusetts Agricultural College.

The school will open August 4 at Hathorne. Mass.. and will last for four days. Topics of lectures will be such matters as the explanation of elementary equipment, Italianizing, the necessity for bees in fruit-growing, and suggestions for honey production.

Details of arrangements and accommodations. and all inquiries, should be addressed to Mr. Fred A. Smith, director, Essex County Agricultural School, Hathorne, Mass. Applications for registration in this school should also be addressed to him.

The opportunity open to the beekeepers of Massachusetts we wish could be available for the craft throughout the nation. Such schols as this one—short, inexpensive, yet full of instruction—insure the spread of efficiency in apiculture.

Sweet Clover will Turn a Poor Yellow Sandy Soil to Rich Black Loam

The following article appeared in the *Rural New Yorker* for July 3. It contains so much of value that we are glad to reproduce it in these columns. The legume has not made rapid progress in the old thickly populated states, mainly, we suppose, on account of a silly prejudice against it as a noxious weed; but here is a case where one farmer says 100 per cent of his farm is in sweet clover; that it will "turn a poor yellow sandy soil to rich black loam," that "stock of all kinds like sweet clover better than alfalfa;" "contains more protein and yields more tons to the acre than any other legume."

How to get these results he explains. Many another farmer in the old conservative state of New York would do well to give it a trial.

SWEET CLOVER IN NEW YORK STATE.

I have read with pleasure F. R. Allen's sweet-clover article. His experience with it as a pasture plant agrees with mine, and mine has extended over many years; 100 per cent of my farm is in sweet clover, and I doubt if any one else in New York can say this. Mr. Allen's plan to sow the seed two years in succession is correct; after that there will be enough seed scattering off each season to keep up the stand. This makes a perennial of it, same as alfalfa. He says that he sowed 10 acres in May, 1913, that had been in corn in 1912, but does not say whether he plowed it first or not. If he did I do not see how he could have been so successful with it, as sweet clover must have a hard seed-bed. Simply disk your sod or other ground three times in the fall, not earlier than November or December (last thing before frost, so that no weeds can start up), then roll twice, so as to get the seed-bed solid. Then any time during January or February sow 20 pounds per acre of hulled seed (white only) half each way, so as to get it even on top of the ground or snow. Freezing and thawing during the winter and spring will do the rest. If he had done this with the 25-acre field he would have had a fine catch. Sweet clover will grow luxuriantly on poor sandy soil that will not produce alfalfa, clover, nor any grain crop, if treated as above, and it will turn a poor yellow sandy soil to rich black loam in less time than any other legume. There is no poorer soil in New York than the sand belt in Schnectady and Albany counties, much of it being of the "drifty" kind.

Stock here of all kinds like sweet clover better than alfalfa or any other legume, which agrees with Mr. Allen's article . As it will produce abundantly where nothing else will grow, contains more protein, and yields more tons to the acre than any other legume, why not raise it for hay as well as pasture? I believe in giving cattle the feed they like as long as it increases milk production, as this is what the farmer is after. I cut my clover about June 15, before it commences to bloom, while it is tender, taking off perhaps 1½ to two tons per acre, and then in August thrash out a seed crop worth at

least as much as six tons more of hay, as long as the price remains where it is. The yield of seed will average about three times as much as alfalfa or red clover, as sweet clover so far has no insects nor diseases of any kind, and it is worth $15, while the other two can be bought for $9.

Schenectady Co., N. Y. A. BLOOMINGDALE.

Some of the Fallacies of the Past; Trying to Follow every new Hive or Idea

SOME years ago GLEANINGS was criticised for advocating in some cases certain new hives and ideas. The pages of apicultural history record many a new thing that was going to revolutionize the beekeeping world. Some of them looked very promising. The divisible-brood-chamber hive, for example, occupied pages and pages of matter from 1885 to 1895. The slogan was to "handle hives instead of frames;" but to-day nearly every one has gone back to the regulation ten-frame Langstroth hive and dimensions. We say "nearly every one" because some use and like the divisible principle. Reversible frames in the early 80's in a like manner had their day, and yet there were some good things about them. Reversible hives also came up about the same time; but the reversing of either hive or frame is now nearly forgotten.

Shake or shook swarming was exploited a few years ago. There were some good things about it; and while there were many modifications of it, the old plan of shaking bees of all ages to make an artificial swarm is not practiced as it once was.

In earlier days the pollen theory occupied whole pages in the bee-journals. If we could only get rid of the pollen in the brood-nest in the fall, it was argued, there would be no dysentery and no winter losses. The fallacy of this has been shown, and to-day good stores and pollen in the outside frames are essential for early brood-rearing. Some early springs do not furnish a sufficient quantity in time.

Non-swarming hives have had their fair share of attention; and it would be unfair to say that there was nothing in some of the principles advocated; but to-day the scheme of swarm control seems to revolve about the man and method rather than the hive.

In earlier days still, there were all kinds of devices to catch the moth-miller and the moth-worm; and while the pest is still troublesome in the South, it is now the least of the beekeeper's trouble, because he knows he can handle it with a vigorous strain of bees.

Well, has any good idea been evolved in late years that was not found in the old original Langstroth book? Yes, many of them. When Langstroth went into the apicultural field he saw the importance of mobility in the use of combs. He invented and put into use an entirely new principle; but in making a device to hold combs he went clear to the other extreme—his frames were too movable. To-day, while there are thousands and thousands who will use nothing but the old original Langstroth, the beekeeping world at large in the United States is using some form of self-spacing frame.

Langstroth, in his day, did not know much about liquid honey; but there came, shortly after, the centrifugal honey-extractor. That device has been improved year by year, until now honey can be taken with a little engine in large quantities, and at a great saving of labor. Comb foundation followed shorily after, and with it the section honey-box, separators, fences, and the modern supers for holding them. Uncapping-devices in the form of knives; improved methods of shipping bees by express and in car lots; stronger and better-made hives; double-walled hives for wintering bees outdoors.

In the matter of hives themselves, no great and radical change has been made from the old original Langstroth except to make a simpler hive—a plain box without porticos, a simple detachable bottom-board, and a double cover.

But there are some hives that it would have been better for the beekeeping world if they had never been "born." They cost money and tons of poper, to say nothing about printer's ink, to exploit their claims. Some of these new ideas or hives have cost thousands of dollars to the users of them. Because of this the tendency seems to be to discount everything new in the form of a hive; and any man who will essay to give the beekeeping world something better, is the butt end of jokes and sarcasm, and in most cases, at least, he ought to be. Shall we therefore ignore all who attempt to put out a new idea? Nay, verily. Such a policy would have killed the Langstroth hive and frame, the honey-extractor, comb foundation, and other wonderful devices before they were born.

There is one very good rule for every one to follow—let the other fellow do the experimenting with the new hive and frame—that is, the inventor himself; then if you feel like trying the device, test it out on a very small scale. In the mean time, stick to the standard goods and to standard methods, and you will be a happier and a wiser man, with more clean cash in your pocket.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



J. E. CRANE, that wetting the joints of sections with steam looks good, p. 482 But why didn't you tell us just how? Can you do a whole box at a time? My guess would be to elevate the box so as to direct the jet of steam from beneath.

WESLEY FOSTER is such good authority that if he says spread brood as he seems to on page 436, I don't dare dispute. I wonder if it's like stimulative feeding. I don't think that ever pays here; but in Colorado it pays big, at times when without it brood-rearing would entirely cease. Does spreading brood come good at the same time? Note that he practically says it doesn't pay when nectar and pollen are plentiful.

R. F. HOLTERMANN, you have my gracious permission to go through three motions in place of one in turning a frame over, p. 491, if you want to, but time's too precious "in this locality." With my first comb I had to do it or break combs. My assistant never has done it, and she's been handling combs thirty years. Moreover, she holds a comb flat when looking for a queen, and has never broken one. Wonder why yours break.

IT is not clear, according to p. 480, "whether merely introducing a queen, without shaking or dequeening, accomplishes a cure or not" in cases of European foul brood. I don't know, but I should think it might at least be a help in most cases, even if a queen of no better stock were introduced; for in most cases when a queen is introduced there is at least a little break in brood-rearing, and that break helps the bees to clean up.

THE fact, p. 433, that Mr. Chadwick's queens lay more in a year than Mr. Byer's or mine explains why they should play out sooner; but does it explain why he should have more laying workers? When a queen goes bad my bees supersede her whether she's three years or three months old, and without any laying workers either. Why shouldn't the same bees do the same thing in California? 'Spect it's that Cyprian blood. [In California, queens might play out at a time of year when conditions were not favorable for the bees to raise another. Perhaps there are no eggs in the hive; the queen dies, and laying workers would naturally follow.—ED.]

WESLEY L. ROBERTS, p. 415, you are starting on the wrong basis when you think good is more persistent than bad. It's often, if not generally, the other way. Also you are away off if you think that crossing, after the first cross, always means "a breaking-up of all good qualities." It means variation, and there may be good variation as well as bad. Let me give a leaf from my own experience, an experience that you cannot have had unless you're grayer than I think you are. I had blacks, pure and simple, for five years. Then I got Italians, and had a chance to compare the two side by side. No room for discussion—the Italians were far and away ahead of the blacks. Then I had crosses, not merely the first, but the tenth or more. Some were very poor; some were excellent. As to persistence, it's been a fight of 49 years against the tendency to black blood. So I feel warranted to say Italians are better, blacks more persistent.

J. E. HAND, you ask, p. 400, "Shall we resort to the abnormal condition of queenlessness with its psychological depression upon the energies of the bees, as advocated by Dr. Miller?" Evidently you don't like my idea of having the colony ten days without a laying queen, and then, in its place, you propose—exactly the same thing! For don't you see that when you give a queen-cell in place of the queen you leave them as long without a laying queen as I do? To be sure, the bees may be in a little better state of mind with a ripe cell than with young cells just begun; but I don't suppose the difference is great. The thing that turns the trick is the same in both cases; it's that ten days with no eggs laid. Let's compare. You give a cell, with the chance that in that cell there may be a virgin with a bad wing, resulting in a drone-layer, or there may be even a dead larva. I eliminate that risk by giving at the end of ten days a young laying queen. Isn't mine the safer plan? But I've tried your plan in a few cases, and it avoids all the fuss of keeping the young queen in a nucleus and then introducing her, making it, oh so much easier! that I should prefer it if I could be sure that it never involved the very thing we are both trying to avoid—swarming. Tell us that you have tried it as many as a hundred times, and that the young queen has not swarmed out in a single case, and I'll accept yours as the better plan. But I would not use either plan for the whole apiary—not for money. I'd want a few of the most promising queens left to make a record, so that out of them I could select the best to breed from.

J. E. Crane

SIFTINGS

Middlebury, Vt.



It is very dry at this time here in Vermont, June 8. We have had little rain since Feb. 25. Clover is just beginning to blossom; and what we think we need is a "splendid life-saving rain," as Grace Allen would say.

* * *

Please, Arthur, I wish you wouldn't call the bees "poor little cusses," page 455. It isn't in good form, and almost makes a lump come in my throat. I am whispering this so no one will hear what I say but just you and me.

* * *

I met our State Commissioner of Agriculture on a train last week. He informed me that he had sowed several acres of sweet clover this season, and our county agricultural agent informs me that the interest in this crop is increasing. Well it may, for our old pastures are already drying up.

* * *

I quite agree with Wesley Foster, page 356, May 1, as to the best method of treating foul brood. Almost any method in the hands of ignorant beekeepers will be liable to prove defective or worse than useless. It needs the patience of Job and perseverance of Paul to keep up the fight.

* * *

When I read that account of 1200 acres of sweet clover, page 375, May 1, I just wanted to migrate to such pleasant pastures at once; but when I turned to the next page and read Virgil Weaver's experience in taking his bees to sweet-clover fields I thought it best to hear both sides before I decided to start.

* * *

I find in traveling about that beekeepers have different ways of estimating the value of their bees. Some count the number of their hives containing bees, while others count or estimate the number of bees in a hive. It is almost needless to add that the latter class are the more successful beekeepers.

* * *

Mr. T. J. Quail thinks alfalfa never yields honey east of the Missouri River, 453, June 1, and asks the experience of other men on this question. Well, I have seen bees work on alfalfa as fast as on any other flowers right here in Vermont. As a rule, however, it does not yield much honey here in the East. It may later.

More and more dandelions every year. It does one good to look over the fields of gold in May and feel that such gold does not demoralize any one, not even the bees. The fields that were gold have since become hoary with the seed-heads. I found one plant yesterday that had over one hundred heads; and as each head had nearly 250 seeds that one plant must have had nearly 25,000 seeds—enough, if evenly distributed, to seed well half an acre. Blessings on the dandelions! They have given us this year thousands of pounds of honey that have kept the bees rearing brood in great shape.

* * *

There is a good deal of discussion this spring about the spreading of brood, and it is well. Wesley Foster tells us it should be done with care, page 436, June 1. How? I have found it sometimes advantageous to take a comb of sealed brood just beginning to hatch, and give a weaker colony and take one with a few eggs, and give to the strong one. Sometimes we may spread brood by an empty comb from the weaker colony, or shaving the cappings of honey above the brood, or at one end of the frame of brood; sometimes, again by taking away a comb of honey and giving a dry comb instead, and finally sometimes by giving a young queen.

* * *

The discussion in the May 1st and May 15th numbers of GLEANINGS as to whether the spraying of fruit-trees injures bees seems rather amusing to one who has had some experience along these lines. One of my yards I found early in May before fruit bloom in fair condition, and coming on well, the same as other yards, but at the close of the bloom I find the old bees nearly gone, and the young bees and brood dying. While all of our other yards have continued to improve, this one has gone back and is not in nearly as good condition June 1st as on May 1st. It seems pathetic to see a ring of dead brood far outside the present cluster of bees, showing where the cluster was able to rear before fruit bloom, or to see the newly hatched bees crawl out of the hive into the grass to die. Evidently the poisoned honey is stored to some extent or it would not kill the newly hatched bees. Such colonies do not recuperate readily. The honey continues to kill the brood for some time after the fruit bloom goes by. With care a part of the yard can, perhaps, be put in shape to winter; but it looks now as though many of the colonies would die out.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Did you ever notice that the most ardent "free trader" is in favor of a tariff on his particular product? The beekeeper is no exception.

* * *

Mr. E. F. Atwater's air-drainage article, page 496, June 15, does not appeal to my sense of reason in the least. Air drainage is a term I cannot quite comprehend, to say nothing of being able to fix it in my mind as anything more than a fancy.

* * *

There is nothing that will discourage the swarming fever more than to remove the old honey from the extracting combs before the new flow begins in earnest. The fact that there is plenty of old comb honey on hand seems to satisfy their judgment that swarming is their only recourse.

* * *

Dr. Miller says, page 481, June 15, "And you cannot know the performance of a queen until she has lived through the full season"! I recently had a young queen that filled five combs full of eggs in five days from the time she started laying. That is performance enough for me.

* * *

In a discussion with my friend Mr. Bixby a few years past, I contended that I lost no more bees on a cold day when they were going three miles to the orange than those that had only half a mile to go. In this I am convinced that Mr. Bixby was right, the past season having proved to my satisfaction that the loss is considerably greater on the long-distance flight.

* * *

Mr. Scholl thinks that I should have said a young good queen, when I said that a young queen was half the battle in fighting disease and securing surplus. He adds that he has seen many young queens that were not as good as old ones, yet Mr. Scholl must admit that age puts a handicap on a man as well as a queen, and the rule must remain in favor of the young queen.

* * *

For a number of years I have been watching the work of different colonies during the time of the yielding of nectar, to satisfy myself whether or not some colonies did not gather nectar from one source while others were working on another. I have decided that such is the case, and my discussion is based on the fact that I had one colony this season that took a fancy to hoarhound nectar while others were working on the last of the orange. The one colony filled their combs with the dark hoarhound honey while the rest were gathering the lighter.

* * *

The season has advanced far enough to be able to figure a little on its production. If all sections of southern California are to be judged by my own locality I would say that production would be no greater than last season. Indeed, it seems probable that there will be much less than last season. With 25 per cent more colonies my production will be less than last season. Swarming has been the great drawback to heavy production. With those who gave constant care to their bees this trouble was greatly reduced; but the haphazard beekeeper this season found his crop passing in swarms, and, indeed, found many of his swarms passing over the hills and far away. More ideal weather than we have had for the past six weeks could not be asked for, but the flow has been slow for all that.

* * *

I have been making some experiments in connection with the discussion last spring as to bees drawing foundation on a certain amount of sugar syrup. In this experiment I have satisfied myself that it takes almost no stores to cause foundation to be drawn to one-third its cell depth. In this I mean to say that it is not and should not be termed comb-building. Removing a super from a strong colony at the close of the main honey-flow, while there was a slow flow at hand, and replacing it with ten full sheets of foundation, I found that the colony would draw the ten sheets to one-third the cell depth in two to three days. But there they stopped abruptly, and continued to draw the cells to the finish only as they were needed to store their honey. This led me to the conclusion that there was sufficient wax in medium brood foundation to draw the cells to one-third their length. To prove my conclusions I removed the foundation at the end of the fifth day, when work had apparently stopped, except on two combs in the center, and replaced the entire super with one containing another full set of foundation. In three days this was drawn to the same length as the first; but there, again, the rush work stopped, just as before.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



TEXAS HONEY-CROP PROSPECTS

So far, southwest Texas reports a comparatively short crop of honey. The spring was quite unfavorable for good results, and the early flows were affected materially by the long-drawn-out cold spring weather. Huajilla and catclaw did not give the expected yield, and in some localities were reported as having failed entirely. The yields of light honey seem very scattering over the southwest Texas territory, and of small yield. Much of this is extracted honey, as the flows were not favorable enough for comb honey. Unlike the usual condition in more favorable years, there is very little comb honey indeed offered at present.

There is hope that the mesquite will give a yield in many of the beekeeping localities where it abounds, since reports have been to the effect that it was budded quite well, and coming into bloom. Quite a number of beekeepers have expressed very little faith in a yield from this source on account of the fact that mesquite has not yielded them any honey crop for a number of years. This source has indeed been a very uncertain one for the past few years.

Throughout the central part of the state there has been considerable horsemint, and some honey is being obtained from that source. While the mesquite here too is just coming into bloom it is not of the usual profusion that obtains when there has been a yield of mesquite honey. The unfavorableness of the springtime has had its serious effect upon all kinds of vegetation and crops. Nearly everything is about a month delayed as compared with the average year. Since the "cotton belt" extends pretty well throughout all of central Texas, and since this plant comes into bloom in our immediate portion, about the middle of June, although it is a little later this year, the bees will be kept busy for some time. Cotton is one of the most certain yielders year after year, according to my experience, and I feel assured of the usual yield from it. Just now rains are very much needed throughout the greater part of this section. The cotton has not really suffered, but more abundant rains means a much more luxuriant growth of this plant. I have found that this is essential toward a good honey yield.

It is indeed difficult for a person to report for the honey-crop conditions for the great Lone Star State without a great deal of assistance from beekeepers located in the widely different portions of the great state. For instance, I have just learned by reports from north Texas that the bees have just begun to swarm, and that one correspondent reports having hived four swarms a few days ago. This is well past the middle of June. The honey season is coming on in this part of Texas while the beekeepers of southwest Texas have long passed the swarming season and even the spring flow.

FIRE-PROOF BUILDINGS.

I have long dreamed of a fire-proof honey-house and work-shop. My present quarters have become too small, and it will soon be necessary to erect a larger building. It is my fondest hope that my dreams will all come true. There will be a basement for honey-storage purposes. This must be dry and well ventilated, and special heating apparatus will be provided so as to keep the honey from granulating in the combs.

The main reason for only partly sinking the basement below the ground line is to elevate the first floor about four feet, or about even with the beds of the wagons in use. I have found that this is quite an advantage in that it saves lots of lifting otherwise necessary. It is easier simply to set the articles to be loaded or unloaded directly from the wagon into the honey-house or vice versa.

Concrete is to be used for the main part of the construction, but in the upper stories corrugated iron will occupy the greater portion of both walls and roof. In fact, I feel like the inventor of a new wall for the building I have in view. The new idea is that of filling out the panels between the re-enforced concrete frame-work of the building, with solid walls of corrugated iron in such a way that both the ends of the upright sheets of the metal will be inserted in the concrete at the sill-line, at the joist-line above, and into the upright piers at each side of each panel. To brace these walls of corrugated panels, angle iron will be used at proper distances across their height, to which the metal will be fastened by means of wiring. The roof will be similarily fastened.

For ordinary purposes such walls as described would be good enough, but it is my intention to use metal lath and plaster on the inside of the building, applied by fastening the metal studding directly to the angle-iron bracings that hold the iron walls.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



REARING GOOD QUEENS

"I am anxious to improve my bees by rearing better queens for each of my colonies, so that better results in honey can be obtained. I noted last year that some of my colonies gave me nearly double the honey that others did. I am going to breed from the two that gave me the highest number of pounds, rearing queens from the one which gave me 179 sections of honey, and drones from the one that gave me 172 sections. Will you give me a few pointers?"

As the time for rearing good queens has arrived, the subject of rearing the best is one well worth thoughtful attention. But allow me to say that the difference in yield, which you observed among your colonies last year, might not come altogether from the work of the queen heading each colony. This I say so you need not be altogether disappointed, should the results of your determination to rear the best of queens turn out less perfect than your expectations led you to hope for.

There are few careful beekeepers but that have noticed the lack of uniformity of yield between their colonies. This may be from two or more reasons, or a combination of them. The colony giving the lesser amount may lack enough bees of the right age for gathering. The difference may lie in the nature of the bee itself. The thorough understanding of the right management of colonies to secure the best results has much to do with the yearly product in honey, and the best queens obtainable will never roll up a success where the management is faulty. A management that has no eye toward the date of blooming of the flowers in the locality will rarely give a satisfactory return for the time and labor expended, even with the best bees the world affords.

But let us look at the bee side. From talks with beekeepers during the past thirty years, I am led to think that the variation in yield averages nearly if not quite 50 per cent between the ten highest colonies and the ten lowest in the same apiary. I am also led to believe that this same proportion will hold good when applied to different apiaries in the same state. That the stock has much to do with this, there can be no question; and when apiarists fully realize the difference in stock, the question of breeding will receive fully as much attention as is necessary for a successful management.

It is hardly neccessary to argue why queens should be scientifically bred. "The survival of the fittest" will hardly develop a better bee than we have now, for she cares for nothing save the perpetuation of the species. Her aims are altogether different from those of man. How often have I heard apiarists say, "If each colony reached the high standard sometimes reached by a single colony, my honey crop would have been doubled." Careful breeding will do much toward this, and with it reduce in proportion the cost of management and equipment. This means greater profits.

There are many points to breed for, but the one most eagerly sought is greater honey production. But in breeding for profit we often run against traits that are almost a part of the bee itself; and to change that means nearly to make over the bee. For example, let us take the swarming impulse or the desire to increase. We can remove many of the conditions that tend to produce swarming, and by persistent breeding reduce this tendency to as low a point as possible. By rearing our queen-cells in colonies whose desire to supersede their queens is the uppermost thought, quite a gain can be made.

As the queen is fundamental to the colony we must have better queens. Cheaply reared queens are detrimental. Any plan is bad which keeps a queen just emerging up from one to eight days isolated from the bees in order that she may be cheaply reared and fertilized through a saving in nuclei. Virgin queens are cheap but of little value when thus kept away from the bees for five to eight days in a nucleus, so that they may be let loose as soon as a laying queen is sold, and become laying a day or two later. In this way a laying queen can be obtained every three or four days from every nucleus made by the queen-breeder.

As long as consumers insist on paying a low price for their stock, and queen-breeders advertise queens at $50. a hundred, so long must they be content with the results of queens reared without proper care. There is too much tendency to see how many queens can be reared, rather than how many good queens. Would that there were more among our numbers like the questioner, who is "anxious to improve his bees by rearing better queens" right in his own apiary.

GENERAL CORRESPONDENCE

THE ALEXANDER-MILLER-FOWLS-TOWNSEND METHOD OF MAKING INCREASE AND KEEPING DOWN SWARMING

BY CHALON FOWLS

[In GLEANINGS for last year, page 979, was an article by Dr. C. C. Miller in reply to Mr. A. Swahn, in which he criticised some of Mr. Alexander's statements as made in the A B C and X Y Z of Bee Culture, on his method of increase. In this connection it is proper to state that the Alexander method of increase has called forth more favorable comment as well as adverse criticism than anything we ever published. Some statements made in the original article, if construed literally without poetic license, will not stand the test of experience, and to this Dr. Miller called attention in his article, page 980, 1914. Mr. J. G. Brown, formerly a member of our editorial staff, and now in Colorado, came back with a reply to Dr. Miller in our issue for Jan. 1, page 27. In this article Mr. Brown showed that he had used the Alexander method in his Colorado apiaries with considerable success. He poked a little fun at the doctor for slightly misquoting Mr. Alexander, and not allowing sufficient leeway for poetic license. Then he gave the names of several prominent Colorado beekeepers who, like himself, had used the method with a great deal of satisfaction. More discussion back and forth followed till finally an article was written by Miss Iona Fowls, who, with her sister and father, has been doing a large business in producing extracted honey for the bottling trade at Oberlin, Ohio; but instead of going into a defense of the Alexander method she told how she and her father had used a modification of the Alexander plan for keeping down swarming. Dr. Miller in his Straws, in the following issue, page 261, calls her to task for making a statement which in his experience in his locality does not prove true. Miss Fowls comes back at him in our issue for May 1, page 377, in which she says that Dr. Miller is talking about one thing and she another; and then in the last paragraph she gives Dr. Miller credit for giving the basic principle of the new method in our issue for Aug. 15, 1911. It will, therefore, be seen that in this new or old method of swarm control several have had a hand, and hence the heading of this article.

Mr. Fowls, in the following article, in referring to the Townsend article in the *Review*, brings out one point that deserves especial emphasis right here; namely, that the ordinary shook-swarm methods take in *bees of all ages*, and for that reason the shake plan cannot be regarded as an unqualified success. In the first place, it does not follow nature; and in the second place it does not always work. In the Fowls modified Alexander plan he follows nature in that he makes his swarm have nothing but old bees. We believe that Mr. Fowls or Mr. Townsend or Dr. Miller (we would not now say who, but probably Mr. Fowls) has struck on a good point in making an artificial swarm that involves the principles of natural swarming.

This whole question is a most opportune and important one, and we hope that every reader of GLEANINGS will go through the discussion very carefully. If you have back volumes of GLEANINGS, and the last issue of the *Review*, you will do well to read all the articles.

We asked Mr. Fowls to repeat his method, notwithstanding it was nearly all given by his daughter in the references cited, because we believe it is one of the most important tricks of the trade that we have published in a decade. A good thing will bear repetition.

We have known Mr. Fowls for many years. He is a man who, notwithstanding his locality is a rather poor one, succeeds with his bees. He has sent his daughters through college. He has built him a beautiful home with all modern conveniences on one of the principal streets of Oberlin. He has plenty of home comforts, and, the last we knew, money in the bank—all this and more from the bees, for he has no other business. Mr. Fowls is not, therefore, a merely theoretical writer, but one who makes money from his bees in a locality that is rather mediocre. If our readers can wade through this long introduction we hope they will take pains to read his article and those of his daughter very carefully. It might be too late to try out this method yet in some localities. If so, mark it, and save it for next year. Here it is.—ED.]

In the June number of *The Beekeepers' Review* Editor Townsend describes a method of swarm control in outyards which he worked out last year, and which he calls "Our modified Alexander plan of swarm control." Readers of GLEANINGS will find the same plan given in an article by my daughter, page 242, March 15, also page 377, May 1.

But, to return to Mr. Townsend's article, I notice he gives as a reason for abandoning the shook-swarm plan, that there is "too much absconding of swarms" to be profitable, but gives no reason for such absconding. Now, I think that, in the system we have worked out and put in practice the last three years, we have eliminated the conditions which caused the absconding in the old "shook" method.

Let us consider for a moment the difference between a natural swarm and a "shook" swarm. A natural swarm is made up of the bees old enough to fly; but a shook swarm consists of bees of all ages—nurse-bees, cell-builders, all sorts. We have made many "shook" swarms previous to 1912 (when we adopted the new plan), and I often thought the bees acted uneasy and dissatisfied, which I attributed to the presence of so many young bees. No doubt many of these were cell-builders primed with royal jelly, which would go right to building another batch of cells.

In 1911 we had a poor season here, the bees getting just enough honey to induce them to swarm, and we practiced "shook" swarming until we became convinced that the plan was wrong in principle for the aforesaid reasons.

About this time Dr. Miller answered an inquiry in GLEANINGS, Aug. 15, page 490, 1911, explaining that the presence of queen-cells above a comb-honey super would not have enough effect on the lower story to start swarming there. Probably I got the idea from this, and the next year (1912) we put it in practice, making over forty swarms by the new plan. The next year (1913) we had a bumper crop, and the bees directed their energies to storing, so we did not need

to make as many swarms; therefore I decided to wait another year before reporting, as I wanted to try the plan out thoroughly under different conditions; so last year we made about fifty swarms by this plan, and I don't remember that we had a single failure.

As before mentioned, our plan was given in detail in the March 15th number of GLEANINGS. I will here repeat it in brief.

Having found a colony with queen-cells we begin our treatment. If the hive has a loose bottom so it (the hive) may be used as an upper story, so much the better. In this case, find the queen and place her on a comb containing but little brood and a few bees, and place in an empty hive, filling the rest of the hive with empty combs, and place on the stand after setting the hive of brood aside. Frames of foundation may be used, but are not as good. In case foundation is used I would take (in addition to the one comb with the queen and a little brood) two frames containing little or no brood from the hive of brood, first brushing off the bees so they will be with the brood. Now place a queen-excluder on the new brood-chamber and two or more extracting-supers of empty combs on top (we use shallow supers) with the hive of brood put on last. Fill any extra space with dummies and leave till the next visit in seven or eight days, when they are moved to a new stand. To insure that no young queens hatch during the time, at the time of making the change tear out the capped cells, leaving all those not capped. Of course the swarm in the lower hive will be made up of returning field bees *all old enough to fly.* It will be seen that this result is radically different than in the case with a shaken swarm with bees of all ages, and therein is the secret of its success, in my opinion.

In this connection I notice Mr. Townsend says, if he does not find the queen the first time looking them over he shakes off six frames of brood, leaving bees and queen below, and raising the brood above. It looks to me very inconsistent, for he is simply making a "shook" swarm, and I should say they would be just as likely to swarm as any "shook" swarm. In other words, it seems to me friend Townsend overlooks an important point right here; for although our methods are alike in so far as putting the brood and queen-cells in process of building beyond the intervening super, nevertheless he allows the young bees (many of which are cell-builders) to remain with the queen in some cases.

The first year I practiced this plan, there were some cases in which cells were built in the lower story; and as there often were a lot of young bees left sticking to the sides of the hive, or adhering to the two outside frames of honey sometimes left below, I believed those fellows did the work. As most of our hives have tight bottoms I was obliged to leave them on the stand, lifting the brood out to raise up. Therefore since that first year's experience I have taken more pains to get those fellows out of the lower story. Rather than leave a quantity of young bees in the hive below I would brush them out into the hive of brood to be put on top, as I feel that is much safer.

Again, referring to Mr. Townsend's article, although I attach more importance to eliminating the cell-builders below, still the rest of his management is the same as mine; and one expression of his I can heartily indorse in which he says of those bees in the top story, "They will finish up as nice a bunch of queen-cells as one wants to see."

Oberlin, Ohio.

THE "LONG IDEA" HIVE: SOME FURTHER DETAILS SUPPLEMENTING THE EDITOR'S ARTICLE ON THE SAME SUBJECT, FEB. 15

BY O. O. POPPLETON

While any one style of hives, like all other instruments used to obtain certain results, is not superior in all respects to other styles used for the same purposes, yet all may and probably do have some advantages and some disadvantages not possessed by other styles. The original Langstroth make of hives, almost identical with the present-day dovetailed hive, seems still to retain its ascendency over other styles in ordinary use in the production of section honey; but in my own production of extracted honey it has not given me as good results or satisfaction as has the long single-story hive with deeper frames. This doesn't mean that the long hive has no faults the other does not possess, but that on the whole its advantages are greater than are its disadvantages.

I presume that I have had more practical experience with this form of hive than has any other beekeeper in this country if not in the world, having used it over forty years, while at the same time I have had



TAKING NOTES ON LARGE-SCALE BEEKEEPING

A group of students from the advanced entomology class, Ohio State University, inspecting the apiary of the A. I. Root Co., under the direction of Professor Hines. They spent a day looking over the equipment for honey-production and queen rearing. The young man at the extreme left is from South Africa; the one at the left of Professor Hines is from China.

large experience with tiered-up hives. One season I took 52,000 lbs. of honey from dovetailed hives, and have had from 10 to 75 of that form of hives in use in my apiaries during the past ten years or more. So my opportunities for thoroughly testing both forms of hives have been very full and complete.

The editor has ably described some of the features of the hive, so I will only amplify some of the points he mentioned, and suggest some others.

Of course, the first thing any one notices on first seeing the hive is its larger size or seemingly larger size. The difference in size between one of these hives, if it were set up on end, and a three-story dovetailed hive is very small indeed, and nothing less than three stories is suitable for the best success in getting extracted honey. In fact, the hive is very similar to what a three-story hive would be if laid down on side with frames changed in position.

It looks as though such a large hive would be much more difficult to move around to different locations in the apiary. Of course, compared to a single-story ten-frame hive they would be heavier; but I can handle them easier, and with less labor, than I can even a two-story hive. I never move any hive, large or small, any distance except on a wheelbarrow or cart. I can pick up one of my large hives and put it on a wheelbarrow much easier than I can a tiered-up one that contains the same amount of honey. This is because the cleats on which the cover rests run all around and near the top of the hive instead of handholes in the center of hives; also because there is no top story to prevent the hive being close to one, so it can be lifted straighter up. This will be fully appreciated by any one who compares the ease of lifting anything heavy close to the body, or well away from it.

Again, a tall hive is much more liable to tip over forward, if the wheelbarrow happens to strike even a small obstruction, damaging the combs, raising the temper of the bees, and bringing out more or less temper from the owner. The men who helped me load on to boats always objected strongly to handling the tiered-up hives because of the extra labor and risk.

One of the principal advantages of the hive is the ease with which it can be examined. Simply remove the hive cover, move

a couple of the slats that are loosely laid over the mortises in the top-bars, and one can see at a glance the general condition of the colony—that is, how full of bees and honey. If appearances indicate that something may not be just right, with a common pocket-knife and a couple of motions one can push back enough frames so he can look into the center of the actual brood-nest to learn the real conditions. A single motion with both hands can then shove all frames to their places; replace the slats and hive-cover, and all is done, without doing any real lifting except the hive-cover.

What I have found to be a very valuable feature of this hive is that it enables one to keep so much closer watch of conditions in the hive. Whenever I extract or go through the hive for any other purpose, I can see without using either extra time or labor in doing so the exact condition of the entire colony—not guess at it, but know it. I find this is a very important point.

I very strongly advise against using any kind of shallow frame this way. I have advised all inquirers to test the method first with the Jumbo size of frames. The more compact a colony can be kept, the better; and frames that are only two inches shallower than is the Jumbo size of frames have to be spread out too much for best results. Another thing, if one wishes at any time to use the regular size of hives and frames, these Jumbo frames and combs can be easily changed to standard size with no material loss.

I have never been a believer in the use of queen-excluders except when raising queens. I have a very decided objection to confining queens to a small part of any kind of hive. I don't believe any one making a specialty of queen-raising would be pleased with these hives. If I were to do any more queen-raising I think I would use one similar in principle to Prof. Gamallo's illustrated on page 147, only with three sections instead of two. I have raised many queens for my own use by what is essentially the Doolittle method, but not so conveniently as the same work could have been done by using tiered-up hives.

The kind of bees to use in these hives is an important factor in securing best results.

Some kinds of bees will raise large quantities of brood during a heavy honey-flow. The result is much less honey during the flow, and thousands more of bees which do not reach the age for best field work until after the flow is over with. Other kinds of bees raise brood equally well during a very light flow of honey; but as soon as a heavy flow sets in it drops excessive brood-rearing and devotes nearly all its energies to honey-storing. In this last-named character the Italians seem to excel all other races very greatly. This seems to be the reason for their great superiority over other kinds of bees, especially in the production of extracted honey. This trait of the Italians seems to be of more importance when using these large single-story hives than in the use of tiered-up hives.

Contrary to the experience of a majority of beekeepers I have not found the dark strains of Italians to give as satisfactory results as do the very light strains. I don't mean those bred for color mainly, but those bred for both color and quality. I used to select my breeding-queens from among those giving the brightest-colored bees that were also the best honey-gatherers.

One of the real objections to these hives was well stated by the editor; viz., the extra expense of the wide boards required to make them. In Iowa, some thirty or forty years ago, I made my hives myself with the aid of a small circular-saw outfit without using any wide boards at all; but these were chaff hives; and, so far as I have ever seen, they are by far the handiest and most convenient chaff hives in existence. From what I hear I judge these hives were made on much the same principle as are those lately recommended and described by Mr. Hand, but more convenient to manipulate. My brother-in-law, Mr. Milo George, of Bowling Green, Ohio, and Mr. H. S. Rouse, of New Hampton, Iowa, are now using this style of hive. When I was with my children in the state of Washington last summer we devised between us a plan of building these hives from the rough timber by the aid of small sawing-machinery. If time and use prove that we have struck on anything that may be valuable to others, I will gladly give a description after full experience.

A person's temperament also has much to do with his choosing the right method of doing any kind of work. Some men can and do get larger net incomes from a small number of acres devoted to gardening than other successful farmers do from many scores or hundreds of acres. If these same men would reverse their work, both would be unsuccessful. These large single-story hives allow of much more intensive methods than do tiered-up hives; and many persons would make a comparative failure with one and not with the other. With others the reverse would be true.

All that is written about these hives is in reference to producing extracted and not section honey.

Stuart, Fla.

AN INTRUDING COLONY OF HONEYBEES

BY EDWARD F. BIGELOW

Recently a swarm of honeybees came out and alighted on a tree. I put them in a Pearl Agnes hive, but it was evidently too small for them. I added a second super story, making three stories in all. Then the hive was taken from under the tree and placed on a box in the apiary.



A pair of swarms.

The next forenoon another swarm came out and alighted on a fence in a direction opposite that of the tree on which the first colony had settled. I placed a hive under the cluster, shook it off, and most of the bees started to enter the hive, but, as usual, a large number remained flying. Then some one gave the alarming cry, "Another swarm is coming out!" Sure enough, the air was filled with bees that were pouring out of the Pearl Agnes hive, which they were deserting, probably because it was too small or I had not put it in a place shady enough This Pearl Agnes colony moved off over the other swarm,now about half in the hive. The flying bees of both colonies seemed to become confused; and the second colony, instead of clustering, went directly into the hive, thus filling that hive to overflowing.

There seemed to be a little "scrap" among them, not only in that afternoon but all the next day after the hive had been removed to the stand, the result being many dead bees. But now, in the words of the old-fashioned novel, they are living happily ever after.

Arcadia, Sound Beach, Ct.

HONEY WITHOUT INCREASE

BY G. W. JOICE

I have been successful in both the home and out yards with the following method of securing a crop of honey every year without making any increase unless I wish it. The system is not of my own invention, but here it is just as I use it.

During feeding, the bees are all at the home yard. I take them to the outyard about May 20, and then put on the honey-board and second full-depth story. I use a Boardman feeder for spring stimulation and feed every evening about sunset a half to a full pint of sugar syrup, a one-to-one mixture, lukewarm. As the bees come out of the cellar about the first week of April, and the white clover begins to bloom the first week in June, I have rousing colonies by that time. Preparations for swarming begin about May 15 to 20, or practically as early as settled warm weather begins. When I find eight or more frames containing brood in a ten-frame hive I remove the parent hive and place a hive containing combs or foundation on the old stand; select



The Pearl Agnes hive and Pearl Agnes, after whom the hive was named.—Photo by Edward F. Bigelow.

a frame of brood containing the queen and young larvæ from the parent hive, clipping her at the time, and placing her on the comb of brood. I put the queen with the one frame of brood in the middle of the new hive on the old stand; place a queen-excluding honey-board on the new hive (I use the wood and 7-wire board), and the old hive on this after destroying all the queen-cells.

In seven or eight days I look the upper hive through for queen-cells and destroy them. If I wish some comb honey I place a super between the two hives when white clover begins to bloom, and a week or ten days later I put it on top of both hives. The reason for first putting it between the hives is to get the bees to draw out the sections, and the reason for putting them on top is to keep them white. After the brood is all hatched from the upper hive the bees will store it full of honey, which may be taken with the extractor and the hive put away to use the following year. In this way the queen is furnished plenty of room to lay, the bees are given plenty of storage room and an abundance of brood, which, by stimulative feeding, is here in time to take advantage of the white-clover flow. I find that I gain about 40 lbs. of extracted honey per colony, and secure about 201 lbs. more fancy comb honey per colony than where I do not follow this system, besides eliminating 98 per cent of the swarming nuisance.

WINTERING A SURPLUS OF QUEENS.

A couple of years ago I had a few short articles in GLEANINGS in regard to wintering a surplus of laying queens in one cluster without division-boards or queen-excluders. I have this very day two queens that laid eggs together last season working in harmony this season. I feel that there is no secret to it that I may keep from my fellow-beemen. But there is this: I sometimes fail, and cannot understand why, when at other times I succeed fully under like circumstances, conditions, and manipulations. I have wintered successfully as many as fourteen laying queens (all of the same season's rearing) in one colony. These colonies are always wintered in the cellar. I wish other readers would try the experiment and report.

The gross receipts from my two yards are about $10 per colony. I also farm 80 acres of land. My bees are certainly great revenue-getters.

Edon, Ohio.



A western honey-distributing company's plant.

PRODUCTION OF HONEY IN THE UNITED STATES; THE NEED OF GREATER SELLING FACILITIES

BY E. R. ROOT

The last United States census shows that, outside of the cities and towns, at least $10,000,000 worth of honey is produced annually; but I am convinced, from the evidence in hand, that the actual amount is at least twice that, or $20,000,000. I have run across dozens and dozens of large honey-producers located up in the mountains or out on the plains, away from assessors, who stated that they had never reported the number of their colonies nor the amount of honey produced. At one of the big conventions of the country, the question was asked how many had furnished Uncle Sam a statement of the number of their bees and of their crops. The great majority had made no such statement, and, what was more, had never been asked for one. So, taking it all in all, it is probable that $25,000,000 would not buy all the honey that is produced annually in the United States.

The increase in the number of specialists, and the decrease in the number of farmer beekeepers on account of foul brood is resulting in more and more honey being produced.

The facilities for producing honey in the United States have been increasing year by year. While the number of beekeepers in the United States is larger than formerly, there are more persons who make the keeping of bees a specialty. There are not a few who own and operate from 1000 to 2000 and even 3000 colonies. The large producers, as a rule, are located west of the Mississippi, and particularly in the irrigated regions where alfalfa and sweet clover are grown.

So large has become the general amount produced that it brings up the problem of insufficient selling facilities. The National Beekeepers' Association touched on this question at its last session at Denver. The secretary, Mr. G. W. Williams, of Redkey, Ind., has repeatedly called attention to the fact that the selling facilities should be in-

creased to take care of this vast production. The F. W. Muth Co. and C. H. W. Weber, both of Cincinnati; the Colorado Honey-producers' Association, of Denver, Col.; the Superior Honey Co., of Ogden and Idaho Falls, Ida.; and the A. I. Root Co., if you please, are among those who have been seeking to find a market for the honey-producers of the United States. Last year, in fact, the A. I. Root Co. spent in the neighborhood of $25,000 in newspaper and magazine advertising. All of these companies have been sending out traveling men to get honey introduced in the main avenues of trade.

THE SUPERIOR HONEY COMPANY.

One of the companies in the West that has been doing much in promoting the sale of honey is the Superior Honey Co., of Ogden, Utah, and Idaho Falls, Idaho. It is not only interested in the honey-selling business but is a large producer of honey. It owns and operates something like 3000 colonies of bees in some very fine bee territory in Utah and Idaho. This company is likewise interested in the sale of beekeepers' supplies, and also manufactures comb foundation. It is also doing a large business in buying honey, both comb and extracted. It is buying tin cans by the carload, and shipping honey all over the United States, both wholesale and retail.

The engraving shown herewith represents one of their warehouses in Ogden, Utah; and the other, almost a duplicate of it, is located at Idaho Falls. Both buildings are of substantial brick, and the company is well organized to do a large business in buying and selling honey and in the sale of supplies for the beekeeper.

If more of the large producers who are interested in the promotion of the sale of honey, especially the introduction of it to the large avenues of trade, would do as the Superior Honey Co. is doing, there would be a better and stronger demand for honey. Already honey is now on sale in Pullman cars, at fancy restaurants, first-class groceries, and drugstores, as it was never sold before. Some day the beekeepers of the country will recognize the services a few of these concerns are doing in the line of promoting the sale of honey in lines that hitherto have been undeveloped.

I had the pleasure of visiting both of the Superior Honey Company's warehouses. I found hustling business men at both places, and evidences of a large business being carried on. I doubt very much whether the beekeepers of the Rocky Mountain districts appreciate what this company is doing in the way of extending the sale of honey. It is doing an immense business. The Ogden warehouse is in charge of the senior Redfield. The Idaho Falls branch is in charge of his brother. A brother-in-law is superintendent of the warehouses and of the manufacturing end of the business.

THE SIMMINS METHOD OF QUEEN INTRODUCTION

BY J. H. TODD

We have read a good deal lately in GLEANINGS about A. C. Miller's direct method of introduction with smoke; and from the varying results achieved it seems there are several essential details which must be observed to secure success. I have not personally tried it, as I nearly always use Simmins' direct method, with which I have never had a failure, and which I believe, all things considered, to be the safest and simplest method of all, especially for a beginner. I must confess I am disappointed at the remarks made on it in the A B C and X Y Z of Bee Culture. When I got the new edition, the first thing I referred to was this, only to find the same short, discouraging allusion to this valuable and infallible method of queen introduction.

May I make special allusion to three parts of this reference?

1. "It is not one (method of introduction) that we would recommend . . . . . in any event to a beginner."

This I have always been at a loss to understand. I should have thought the best method for a beginner is the one where there is the best manipulation and least chance of making a mistake—in other words, the simplest. Now, what can be simpler than the Simmins method? It is of all methods the one that can be performed by rule-of-the-thumb, regardless of every condition of colony and weather, except only that the colony must be queenless, no matter for how short or how long a time. Queen-cells may be present or not—only queenlessness is necessary.

2. "And the hive closed up for 48 hours." I don't know how this came to be inserted, as I am sure Mr. Simmins did not intend the entrance to be closed; and from the footnote you clearly mean closing the entrance. I find nothing in his book about closing the entrance. He certainly gives a caution against examining the hive for 48 hours, but that is all.

I think closing the entrance is a mistake. I never have done it, and am sure it is not part of the Simmins method.

3. Then, again, in the A B C you say, "This will work safely in many cases; but we are sure there are some conditions where it does not." And now at once, as a comparison to the above, let me quote from Mr. Simmins' book, 1904 edition, page 289, an extract he gives from Mr. F. Cheshire's work on bees:

"Following up the question, I tried many dozens of experiments, and found that by Mr. Simmins' method it was quite easy, and not only to introduce, but to get one queen to lay in half a dozen distinct hives in a single week. . . . My trials have, I believe, embraced almost every supposable difficulty and variation in season and in the condition of the stocks, and show the system to be practically perfect. . . . . Direct introduction as taught by Mr. Simmins has saved me queens, time, and anxiety, and I feel pleasure in expressing my indebtedness."

From the above it appears Mr. Cheshire's unqualified praise of the system is based on exhaustive experiments. Can you tell us whether the above rather discouraging quotation from the A B C is similarly based on practice, or is it merely supposition or opinion of the authors? It reads as though it were merely an opinion.

Here are the directions in the author's words:

"The three things of importance to be observed are so follows:

"1. Keep the queen quite alone for not less than 30 minutes.

"2. She is to be without food meanwhile,

"3, and to be allowed to run down from the top of the frames, after darkness has set in, by lamplight. It is also important that the same receptacle be not used twice over for holding the queen during the thirty minutes' probation without being first scalded or otherwise cleansed. Of course, a metal cage is easily made clean, though there is no objection to the cheap 'Safety' matchboxes so commonly in use, as there is nothing obnoxious about this kind. . . Caution: Make no examination after inserting the queen, ... until 48 hours have expired.

"The above meets all requirements, whether the colony has been long or only a short time queenless, if it has brood or not, or queen-cells in any stage of development. It is also applicable to any season of the year."

In conclusion I will add three hints from my own experience:

1. Have a good lamp so as to be sure the queen actually goes down between two frames.

2. Take the smoker lighted just to keep back the bees that come out when the mat is lifted.

3. Make a rule of running the queen between two central combs in case the bees are not clustering at the corners of the hives, and only just uncover the ends of the frames so as to give room to run the queen down comfortably; don't pull all the mat off and make a disturbance. Do it all as quietly as possible. Use very little smoke, just to prevent the bees coming out and getting crushed when you adjust the mat again. Work as if you were in a room with a sleeping baby who must not be awakened.

Blenheim, N. Z., March 20.

[Your whole plea in favor of the Simmins method of introducing is based on a misunderstanding of an unfortunate wording which, we are frank to admit, might be construed to mean *closing the entrance of the hive.* It certainly was not so meant by us. What we intended to convey was that the hive should be closed up, meaning putting on the cover and not opening it up nor disturbing again for 48 hours. You have the idea that we intended the *entrance* should be closed. We are not sure that Mr. Miller received the same impression. If he had he would have called attention to the error. This language has been used in two different editions of the A B C and X Y Z of Bee Culture, and yet no one hitherto has read it as you do, unless it was, perhaps, A. C. Miller, as implied in his footnote. We will see that there is no ambiguity in our next edition.

You object to the word of caution wherein we state that the plan "is not one that we would recommend in the case of a valuable queen, or in any event to a beginner." Perhaps as time goes on we may modify our opinion. We are always open to conviction. But the sentence in question was not based on theory nor prejudice, as you surmise. We referred the matter at the time to the experienced men in our yards who had tried it faithfully. It would work with them, and we used it to a considerable extent; but we have lost queens by it, and yet we followed Mr. Simmins' directions to the letter; nor did we close the entrance, as you imply, for 48 hours. Further experience with the method might modify the change in the language, although it has stood thus through two different editions.

You have, perhaps, overlooked the fact that we do a business of introducing queens, day in and day out, on a larger scale, per-

haps, than any other concern in the world. We have tested all methods of introducing, and are constantly testing them; and every now and then we revert back to the Simmins fasting method; but it is an unvarnished fact that we seem to be drifting back to the caging method, which is by no means perfect.

The A B C and X Y Z of Bee Culture was written primarily for beginners. Since the first edition it has outgrown its swaddling-clothes, and is now a volume for the professional as well as for the beginner. It is one of our policies in this work to recommend nothing to the beginner that has not stood the most thorough test in our own yards or in the yards of some successful honey-producers who have had a larger experience than ourselves, and are, therefore, more competent to judge.—ED.]

SERVING THE DRINKS WITH SAFETY

BY B. C. AUTEN

Here is a watering device which I believe answers all requirements better than any other I have seen. It will furnish an abundant supply of water for a large force of bees, keeps the water pure and fresh, gives no chance for drowning the bees, and requires attention only once in several days.





Furnishes an abundant supply of water for a large force of bees.

The reservoir is one of the tanks sold by the oil companies for the storage of gasoline, capacity sixty gallons, fitted with a brass faucet and with a four-inch screw cap in the top. The reservoir is filled with water, and the faucet adjusted to a drip faster or slower, according to the number of bees.

The other part of the apparatus is a common galvanized-iron tub, with a hole punched in the side a half-inch or an inch from the bottom. The tub should be placed in position, and water be allowed to run in until it reaches the level of the outlet-hole. Then sand should be spread in the bottom and leveled up with the water until its surface is slightly above that of the water. The bees then stand dry-shod on the sand, and reach their tongues down into it for the water. The drip from the tank keeps up the supply, and the outlet-hole prevents the water reaching the surface of the sand.

All watering-devices using cobs, grass, cork dust, sawdust, or any other organic material, will get foul in a very few days; but with the sand, as used above, the water will never get foul.

Carthage, Mo.

FOUNDATION ECONOMY

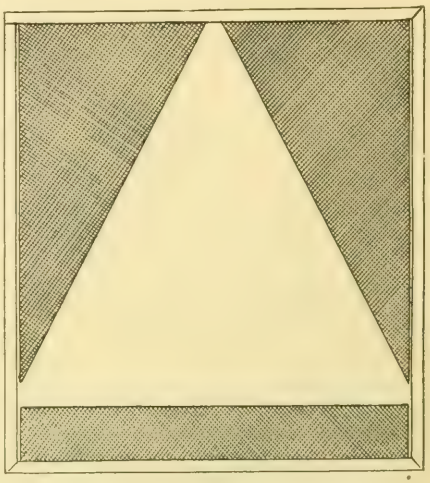
BY C. V. CONOVER

During each of the last two seasons I used a number of supers of sections fitted with foundation cut and used as illustrated. In every case the results were equal in every respect to those obtained by using nearly full sheets of foundation and bottom starters as advocated by Dr. C. C. Miller. My plan seems to be about the one way of placing foundation in sections that is not shown or described in the A B C and X Y Z of Bee Culture.

This arrangement of foundation produced finished sections in which the comb was straight and was attached on all four sides without corner holes. There was never any trouble with buckling of foundation due to sections or foundation being out of square, or from expansion when placed on the hive, as is often the case when full or nearly full sheets are used. The foundation is not so liable to fall from accidental rough handling before it reaches the bees, as the weight on the top where it is fastened is reduced a half, and the weight remaining is concentrated nearer the line of attachment. But the advantage over Dr. Miller's plan lay in the saving of foundation which was effected. With 4¼ x 4¾ sections this saving amounts to about 45 per cent of the foundation. With 4¼ x 4¼ sections it would be a trifle less, as the bottom starter occupies a relatively larger portion of the space in this shape of section.

The one disadvantage was the trouble of cutting and fastening the greater number of pieces of foundation. The cutting was not a serious matter; and as I fastened all foundation with melted wax, the fixing of the extra piece of the top starter merely took a little more time in placing the pieces, but offered no further obstacle. I imagine that, with a little ingenuity, the hot plate fasteners could be made to handle these pieces with the expenditure of a little more time on each.

I figured that the saving effected by this means, over the use of bottom starters and full top starters reaching within ¼ in. of



the bottom starter, amounted to ¼ cent per section when using extra-thin super foundation at 70 cts. per lb., and a little more than that when using thin super at 60 cts. per pound. This is not a great amount in itself, and often would be offset by the extra time necessary; but for any one who is long on time and short on money it offers an excellent opportunity to make the one take the place of the other without any sacrifice of results.

Flint, Mich.

A SIMPLE WATERING ARRANGEMENT

BY D. E. LHOMMEDIEU

When setting bees out of winter quarters I was desirous of getting them started at a watering-place close by, so they would not go to the neighbor's well. I started them by setting out wheat flour before they gathered natural pollen. They went wild on the flour. By placing the water-dishes close by they commenced to carry water too. The bees seemed to take the flour so fast I finally substituted some reddog—finely ground shorts for stock-feeding purposes. They soon quit working, and commenced with the regular wheat flour as fast as ever.

To return to the watering, I tried putting in about a heaping teaspoonful of salt to 12 or 15 quarts of water. In some dishes I put no salt. The bees practically left the dishes that were not salted.

To devise a watering-place for 10 cts., buy a candy-pail; put in two teaspoonfuls of salt; fill with water, and cover the top with corn cobs. In a few days, when they

become water-soaked, replace with a new set; and by the time they are ready to throw out, the old ones are dry to replace them. Change the water occasionally. Fill up the pail mornings before they get to work. With a good-sized yard you may need two or three pails scattered among the hives. I never see a bee around my pump now, only a few rods from the hives.

Colo, Iowa.

AN OBSERVATORY HIVE 100 FEET FROM THE GROUND

BY L. ESENHOWER

[One hundred feet above the sidewalk in a section of a city in Pennsylvania stands the "house-apiary" of Mr. Esenhower. The hives are situated inside a tank house on the roof of a high building. A few years ago Mr. Esenhower averaged 60 pounds per colony. Further particulars regarding the apiary were given in GLEANINGS for March 1, 1914.—ED.]

The interesting feature of my house-apiary is the observatory hive. The combs are arranged vertically, one above the other, in such a shape as to present the largest surface to view.

While I have not gone into any scientific observation, this would be an excellent opportunity for so doing. Lack of time prevents me making this observation.



The combs are arranged vertically.

The small picture shows the cluster as it appears in winter.

I think the cluster is located where it is on account of the feeder being so near. There have been many far more interesting features developed in this hive of the honeybee which would require extended writing to put them all on paper.

From the commercial standpoint it is not a success. As a novelty, it answers admirable purposes. It has been viewed by many visitors who have expressed their astonishment and admiration at so novel a contrivance.



The winter cluster.

Last year the bees stored only two combs above the brood. I intend to try a new experiment this coming season, and will be able to report later on.

We did not find brood on more than three combs, and this was for a short time only, probably not exceeding four weeks—that in the height of the season.

Reading, Pa.

SOME UNSATISFACTORY EXPERIENCE IN CURING FOUL BROOD BY THE BALDRIDGE PLAN

BY JOSEPH J. ANDERSON

Last season when I had a very heavy percentage of American foul brood among my colonies in three yards I decided to shake every colony in these yards (more than three hundred), as I hoped to get rid of the disease at one stroke. This I did at the beginning of the honey-flow. I got a fine crop of first-class honey, and about two tons of beautiful wax.

The greatest care was used in handling combs and in rendering the wax. The melting was all done during a heavy honey-flow. A few of the combs were filled with honey, this was extracted, and strong formaldehyde used in disinfecting the extractor-tank and tools. I got a splendid lot of fine new combs drawn out.

However, I made only one shaking, putting the bees on full sheets of foundation. With some of the colonies, perhaps a third, I used the modified Baldridge plan, as described in one of the June issues of GLEANINGS of last year. I used funnel-shaped tin tubes about 8 inches long, with the end opening only large enough to permit one bee to pass out at a time. I set the diseased hive at right angles to the new one, with the end of the tube about two inches above the entrance, according to the orthodox method. But the bees defied all rules, and passed into the hive as well as out through the tube.

In my first inspection this spring I discovered twenty-six cases among those treated last summer.

I was disposed to lay my troubles to the Baldridge plan, which I now denominate the tin-horn method, since the one yard where I did not use this plan showed no recurrence.

We have had rains, clouds, and wind the last two weeks, so that no work could be done among the bees. Three days ago, May 16, we got a few hours of sunshine, and I started to inspect the second time. I examined four and found the infection in each one—only a cell or two—but it was there sure enough. Perhaps when I get to the yard where I did not use the Baldridge plan I shall find the infection, although at the first inspection I passed all as clean.

The query I am putting to myself is this: Are my troubles due to the use of the Baldridge plan or to the single shake or both? Perhaps had I shaken twice my colonies would have been clear of the infection. My experience with foul brood teaches that, while one knows a colony is diseased when he sees the symptoms, he can never be absolutely certain that a colony is not infected, since a single cell containing the disease may be overlooked, no matter how careful the inspection. A second inspection may reveal the trouble as in the case of the four colonies.

"Where am I?" is the big question now. If I am anywhere, how shall I proceed? I may and will treat the diseased colonies, bringing them in to the home yard where I have a cellar and other equipment for handling the infected combs.

But when I do this, am I certain no more infection exists among the rest? Shall I proceed to make my increase artificially as hitherto, thus incidentally eliminating almost absolutely all swarming? Or shall I let the bees swarm to avoid the chance of spreading disease? How much danger is there of a swarm from an infected colony developing foul brood when hived on full sheets of foundation? Of one thing I am certain, I shall do no more fooling with the Baldridge plan, modified or otherwise.

There is a strong feeling among many prominent beemen that the only efficient way of treating foul brood is to burn up brood, hive and all. But when I reflect that these men do not get rid of foul brood, but have to burn every year, I am led to believe that shaking properly done is just as effectual, and certainly far less expensive.

It seems that foul brood is with us to stay, and that it can never be completely eradicated.

A second inspection has shown thirteen cases recurring among the bees (75 colonies) above referred to, where I did not use the Baldridge plan, and 100 cases among those 160 colonies where I did use it somewhat. A mile from my two yards is an apiary where I know some foul brood has existed. Have my bees carried the disease from there after being shaken?

Salem, Idaho.

[Last winter we spent a couple of days with Mr. J. J. Anderson; and during that time we looked over two of his outyards that had been placed in winter quarters. Pictures of these will be given in September or October. It is sufficient to state that Mr. Anderson is one of the most successful comb-honey producers in the United States. The criticism cannot be made that he did not follow directions for treating foul

brood carefully, for he is precision itself. His last paragraph suggests the cause of the recurrence of the disease among his bees where he says, "A mile from my two yards is an apiary where I know foul brood has existed. Have my bees carried the disease from there after being shaken?"

In answer to the last sentence we say, probably, yes. We do not believe the recurrence of foul brood in your yards was due to the fact that there was only one shaking instead of two, or that the Baldridge plan was unsafe, although if one uses it he takes a little risk; but if we had much disease in a yard we would use it; for to destroy good brood in a strong colony is a big waste. By the Baldridge plan this is all saved, except what is actually dead or diseased.

To sum up, it is possible that some of this recurrence was due to the Baldridge plan; but we venture the assertion that 99 per cent of it, if not 100, came from the yard a mile away. If that other yard contained any old combs or hives from which the bees had died the previous winter, the Anderson bees would be almost sure to find them; and if there was infection in them they would carry it to their own hives. It is a well-known fact that the first colonies to die in winter are those that had foul brood the previous fall. If, therefore, there were dead colonies in that yard a mile away, there is a strong probability that they contained diseased honey.

We would suggest that Mr. Anderson either buy out that yard or get his neighbor to treat it.

Years ago, when we had foul brood extensively in our home apiary, we shook only once on foundation; and we never, in all the hundred or so of colonies shaken, have had a recurrence. Dr. E. F. Phillips, of the Department of Agriculture, has told us that one shaking is ordinarily sufficient; and, if we are correct, he advises only one shaking.

We shall be glad to hear from our foulbrood inspectors—especially N. E. France, and any of the old-time inspectors in New York. If two shakings are necessary to make it sure to cure American foul brood, we are willing to be shown.—ED.]

CARLOADS OF BEES MOVING NORTHWARD TO MEDINA

Some New Tricks in Loading Hives into a Car, whereby nearly 400 Colonies can be put into a 36-foot Car

BY E. R. ROOT

The first two carloads of bees have arrived—one from Virginia, and one from Texas. Announcements concerning the arrival of these cars appear in our issue for June 1, page 431, and June 15, page 521. Still another one will come from Virginia some time in July or August.

The aim was to get the two first cars here before the opening of clover. The first car from Virginia arrived in ample time. The second car did not arrive until June 20 on account of unfavorable weather in Texas. Mr. Harry Davenport, one of our yard men, came with both cars. The distance was considerably greater on the second car, and on account of this we arranged to put in ten barrels of water, or enough to last practically the entire trip. Giving the bees water at intervals when the weather is very warm, in the form of a spray, is very essential. A little force pump is used to throw the water on the screens where the bees cluster tightly on the wire cloth; and where the temperature seems to be high enough to be dangerous to the bees or brood a little cooling spray not only gives them a drink, but evaporation immediately lowers the temperature. The bees will drop back from the wire cloth and go on to the combs where they should be. As soon as they get hot and roar again they are given another light spray. It can be imagined that the attendant, if the weather is very hot, has all he can do to keep the bees cool, and experience shows that he is busy both night and day. As we have before stated, traveling with a carload of bees is no Pullman job. The gas from the locomotive in going through tunnels is unpleasant to the attendant and the cinders fall on the wire-cloth screens, although we have less of this accumulation by the new method of loading, which I shall now proceed to describe.

For the convenience of the reader we will reproduce the two cuts as they appear on page 57, Jan. 15, as seen in Figs. 1 and 2. Fig. 3 shows the piles of hives and crates after they are loaded in the car. One of the crates (see Fig. 1) is placed on the car bottom, as shown in Fig. 2. As this picture was taken when the bees were moved in October, the ordinary box car was employed; but when moving the bees north, a cattle-car was used, but the method of loading is

practically the same. First a long crate is laid on the car floor, just long enough to reach up to the car door and to the end of the car. The hives are then piled on top of this crate in pairs, the back and front of the hives pointing to the back and front of the car. This leaves the rows of hives parallel to the track. As soon as the first tier of hives is placed on the crate, another crate is put on top, and then another tier of hives, then another crate, and so on clear up to the top of the car. Four tiers like this are placed in an ordinary car. When so loaded one can get about 350 colonies in a 36-foot car. Mr. J. E. Marchant, formerly in our employ, and now with the J. E. Marchant Bee and Honey Co., says he can load 400 colonies, or, more exactly, over 200 two-story colonies, in a 36-foot car, and use only half the number of crates. He finds that the two-story hives go through in as good condition as the single-story, and the more colonies, or bees, rather, that one can get into the car, the cheaper the relative freight. The minimum weight on the 36-foot car is 14,000 lbs. Unless one can make up a shipment that will equal that minimum he is compelled to pay more freight proportionally per colony, as will be readily seen. Mr. Marchant's plan is to load the two-story colonies clear along on one side without any reference to the door. This gives room for extra colonies. Of course a doorway must be provided on the other side for entrance and egress. Ordinarily we would consider it more difficult to ship two-story than single-story, as the ventilation in the latter case would be a little better. But if one thoroughly understands his job, and the weather conditions are not too severe, he may succeed nicely with the two-story plan.



Fig. 1.—Crating on platform ready to load.

Fig. 3 shows how our first Virginia car of bees came to Medina. There is a long crate, as shown at 1 and 2; then a tier of hives; then another crate. These are piled up in alternation until the requisite height is secured. The camera shows a view looking into the doorway, and how the crate serves to let in air between each tier of hives. It will be readily seen that, by making a hive two-story, and then splitting it up at the end of the journey into two, one can save in lumber and crating, and at the same time increase the space for bees.

In the foreground, Fig. 3, will be seen a 2 x 4 with notches cut in the side. We used, as far as possible, old pieces in former cars loaded on the old plan. On that plan we made a series of shelves on which several tiers of hives were placed. We had supposed it might be necessary to remove a single colony from its place in the car, and give it individual treatment, or place it where it could get more air. Theoretically this was correct; but in practice it is not practicable to disturb a single colony *en route*. By piling up the hives and crating



Fig. 2.—One section in the car ready for the hives.



Fig. 3.—Interior of first car of bees from Virginia, May 21, 1915, just before the work of unloading began.

like cordwood, the several tiers are locked together, and all that is necessary is to brace the individual piles from each other, and yet at the same time provide a passage for the attendant so he can water the bees by running his spray nozzle to each tier of hives.

The 2 x 4's put up on edge make it possible for the attendant to run his hand between the tiers; and if he can feel the hot breath of the bees coming up between the colonies, and he hears considerable roaring, he proceeds to give a spray. If the water runs clear down through the colony it does no particular harm, although too much dousing will kill the young brood.

Mr. Marchant, who has just brought up two carloads of bees from Apalachicola, likes this new method of piling the hives and crating like cordwood as here shown, and considers it far superior to the old way of putting up shelving that had to be strong enough to hold a whole tier of hives, independently of the tier below. By the new method of loading, one tier of hives supports the tier above.

Moving bees by the carload is getting to be a real science, and it is now possible to take bees from the North to the South and from the South to the North without the loss of any bees or brood, providing the weather is not too hot.* The great obstacle in the way is the freight, cost of crating, and screens, as well as the transportation of attendant.. So far the railroad companies do not put bees in a class where there will be any very large number of shipments from the North to the South. Moreover, they compel the shipper to pay regular railroad fare for the attendant. For all other kinds of live stock, such as horses, sheep, and

* When the last carload from Texas started it was 110 in the shade. The excessive heat and the frequent spraying to keep down the temperature killed about 20 per cent of the brood.

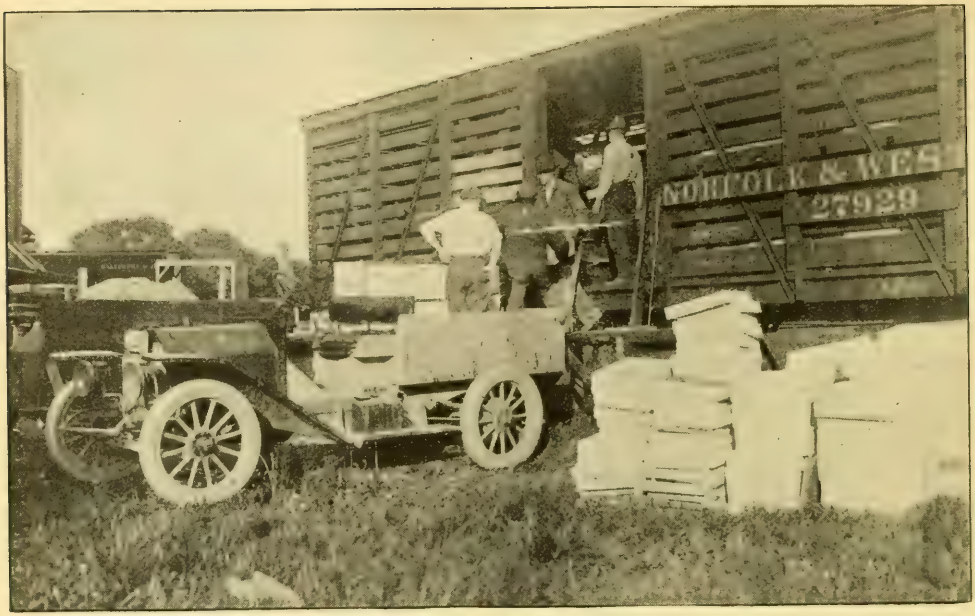


Fig. 4.—Unloading first car of bees from Virginia. Truck body placed on old touring car.

cattle, no charge is made for the transportation of the man in charge. By the same token, the attendant who goes with bees should not be compelled to pay regular railroad fare in addition to the freight. Unless the beekeepers of the country can get better rates, there will probably be but few carload shipments of bees. With lower freight and the elimination of railroad fare going and coming, migratory beekeeping would be practiced to a considerable extent; for then it would be possible for the large producers to catch an early crop of honey in the South, and move northward and catch another crop; and in some rare cases, perhaps he could make three jumps; but it is not possible under existing conditions. Marked copies of this article will be sent to the leading railroad companies, and unless they will make some liberal concessions they will probably not get much more business, as we cannot stand these excessive rates. At present it costs on the average about $2.00 per colony to take it south, and $2.00 to move it back. One must be sure of a good crop before he undertakes to pay $4.00 per colony to catch an extra honey-flow in the South as well as in the North. It is seldom that a crop of honey will equal that figure per colony; and were it not for the chance of making increase in the South, and a further chance of selling the bees after arriving north, the movement of bees in car lots would never be attempted, and probably will not be continued unless more equitable rates are secured. We have already moved, up to date, nine cars; and while this is not the biggest record, perhaps we have done enough of it to believe we know something about the cost and difficulties.

Well, we will suppose the cars of bees has arrived at its destination. It is very important that complete arrangements be made in advance. As soon as the bees can be unloaded and placed on their stands for a flight, the better. If the car arrives late in the afternoon, every hive should be placed on its stand, or a temporary stand, at least before nightfall. This can be easily done by the use of one or more automobile trucks. There should be a force of strong men. Two in the car to pass out the colonies, two at each truck, and one or two men to help unload and place on their stands, would help materially. We unloaded our two last cars of bees, with the help of two trucks, in about an hour each. After the hives were all in place, and after nightfall, the entrance-screens were removed, and the bees allowed to come out. We find it better to release the bees at night rather than during the day. This can be easily done by means of a strong screwdriver and an electric pocket-light to show the exact location of the tacks that secure the entrance-screen.

In this connection it is well to explain that the bottom screen has a slot in one end of the frame. This slot is left open after the bottom screens are put on the

hives. Just before loading, these slots are closed with wire cloth. The bees should not be confined one minute longer than is necessary. If possible, bees should be loaded late in the afternoon, and, better still, after they have stopped flying. The entrance-screens are nailed just before the bees are loaded into the car. If the bees are flying the closing will have to be deferred till night.

Fig. 4 shows one of the automobile trucks being loaded. The regular covers and bottoms should be placed first, then next the colonies themselves.

A ROTARY SECTION CLEANER

BY A. E. SHORE

A machine which will enable one to clean as many cases of honey as four men can clean by hand is that illustrated. I have been using the machine in cleaning comb honey for the Superior Honey Co., at Idaho Falls.

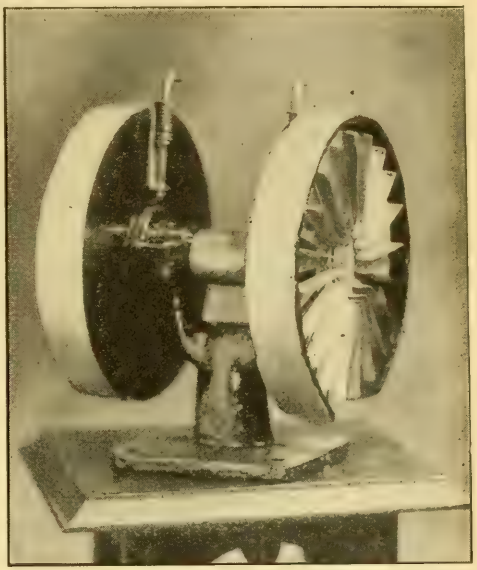
I sorted the honey, cleaned and cased it, and could get through about as many cases as four others could do by hand.

The illustration will show what a small power is necessary to run the little machine. Any one can soon learn to use it.

Charles R. Dana, of Ogden, cleaned ten cases an hour with this machine.

Ogden, Utah.

[While we were in Ogden last winter we had the pleasure of meeting Mr. Shore and seeing his machine which he here describes. He sent it to Medina, but we had some little trouble with it on account of its breaking the sections. But Mr. F. W. Redfield said he had seen the machine in use, and that it had been doing very satisfactory work. It has the advantage over sandpaper in that it does not clog up; and if properly used it will doubtless do good work.—ED.]



Not an electric fan, but a section cleaner.

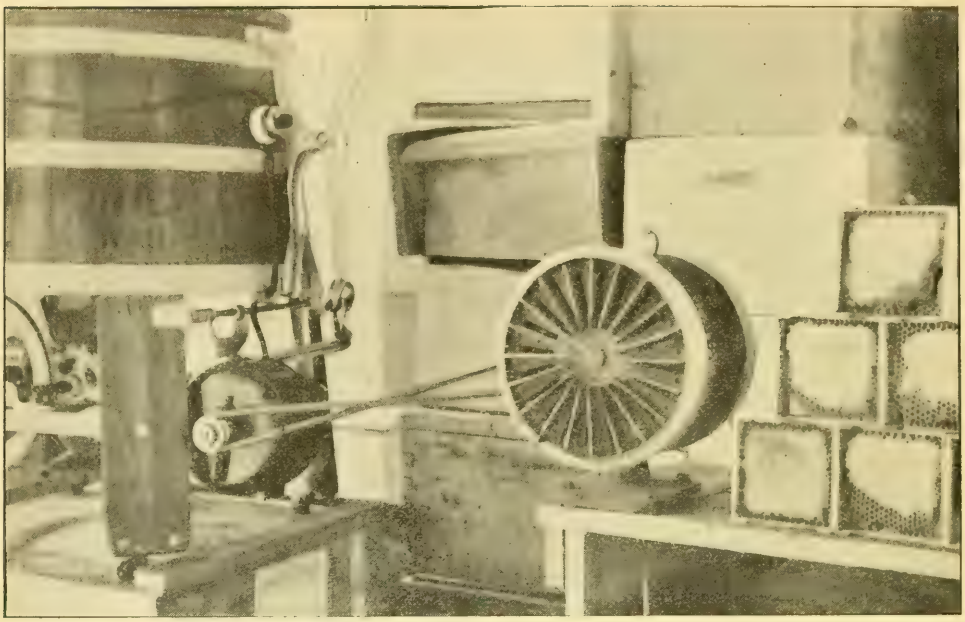
A QUEEN-REARING FAILURE WITH A BRIGHT SIDE

BY RUTH C. GIFFORD

My first attempt at queen-rearing was made last summer. Before starting I read everything available on the subject. Most of the methods were too complex. I wanted some good queens and also the colonies at work in supers during the clover flow. Finally I decided to rear the queens near the end of the flow; but even then I did not want to use any more colonies than were absolutely necessary.

When the time came for starting the cells, a strong colony was made broodless and queenless, as recommended in one method given in the A B C of Bee Culture. Frames containing honey were left in the hive, and the colony was allowed to stand a couple of hours. Then it was given a frame containing eggs and young larvæ from the high-record colony. The comb in this frame was shaved back almost to the midrib on both sides. Several days later the other frames were returned, together with an extra hive of bees and brood. Everything seemed to go nicely. They built fourteen good-looking queen-cells.

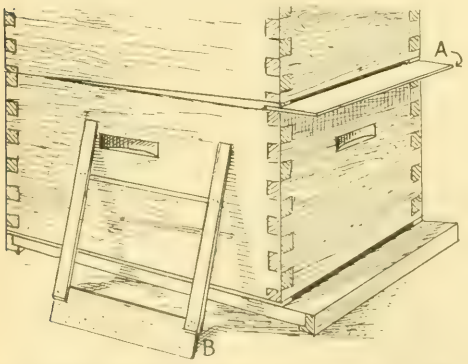
The nuclei for the cells were placed in three eight-frame hives, two of which were divided into three and the other into two equal compartments. As wire screening had been tacked on the bottoms of these hives they could be placed directly over three colonies whose supers had been removed,



Little power is necessary to drive the wheel.

After the nuclei and original colony had been supplied with cells, two fine ones were left.

In caring for these a different plan was tried. Wire screening was laid on two more colonies. On that were placed upper entrances (shown in the diagram), and on each of these one regular hive-body. Then it was the work of only a few moments to fix two good nuclei with plenty of honey. Preparing these last two hives did not require nearly as much work as the others, and no holes had to be bored for entrances.



An upper entrance that is convenient and easily arranged.

The nuclei were watched carefully, and all appeared to have equal chances for rearing good queens. None of them were bothered by robbers. After a reasonable time they were examined. Both the two nuclei which were last made had good queens. One of the others had a kind of queen, but she hadn't laid when she was six weeks old, and so I snipped off her head. The other nuclei had no queen.

I honestly think this is an unusually bad showing for the nuclei in the hives which were divided into two and three compartments. But I'm not going to bother with them again when better results with far less work can be obtained by using one nucleus to a hive with an upper entrance. Two or three of these nucleus hives can be piled on one colony, because their entrances need not be in a straight line.

The upper entrance mentioned above is certainly convenient. It is always ready for use, and the only thing the operator has to do is to stuff the entrance proper with a clean white rag until it is the size desired. Robbers have no chance to get in the cracks at the sides of the hive. The strip of tin fastened to the sloping sticks holds them in place. Without it they shoot apart or get crooked when a hive is set on them. The wood used in the alighting-board is three-sixteenths of an inch thick. The two side pieces are both from a 1 x 5⅛ x 16-inch strip ripped diagonally. Perhaps every one is using these entrances and has just neglected to mention them because they are so simple.

North East, Md.

NOTES FROM GERMANY

BY J. A. HEBERLE

The teacher, W. Honzejk, reported in the *Deutsche Imker aus Bochmen* an interesting observation of bees moving eggs. He says the various instances of bees moving eggs, as reported in the contemporary bee-literature, were never convincing to him. That bees with a laying queen take eggs from one comb and carry it to another, no experienced beekeeper will believe. The following instances will prove that a queenless colony which received a fertile queen in a cage really did move eggs.

"The middle of July, 1913, in the presence of the owner, the merchant Jos. Fleischer, of Reichenberg, I examined an after-swarm that had been there before, and found it queenless. Mr. Ed Sieber, our vice-president, was also present, and gave us a young fertile queen which I took from an after-swarm and gave it to this queenless colony the same day about 4 P. M., using a sticking-cage. [These round cages are stuck into the comb with the queen, giving her a comb area of 1¼ to 1½ inches in diameter. To liberate the queen the cage must be pulled out or the bees have to gnaw deep into the comb.]

"The queenless colony was on four large combs. I pulled the fourth comb back enough to get room for a nice comb I had selected from the comb-chest, caged the queen on it, and put it in the prepared space. Immediately after I had shoved up the comb that I had pulled back to make room for the comb with the queen on it, the colony made that peculiar humming which all practical beekeepers know means joy, and began to cover the cage. The field bees returning apparently recognized the change, delayed before the entrance, and paid honor to the royal presence by fanning, etc.

"At 2 P. M. the next day I found that the space between the comb on which the queen had been caged was thickly covered with bees, and I had to give a little smoke to get at the cage to free the queen. The liberated queen was moving very slowly, and it took her some time to get to the other side of the comb.

"I was greatly surprised to find on the side of the comb on which the queen had been imprisoned, fresh eggs. About 300 of them were placed in a circle around the cage. The cells that had been covered by the cage were free from eggs."

Mr. Honzejk says, "In this peculiar case we may assume that the fertile queen dropped the eggs, and these fell on the bottom whence the bees gathered them up; or it is possible that the bees caught the eggs at the meshes and placed them around the cage.

"The supposition that the eggs were in the comb when it was with the queen given to the colony, or that they were from laying workers or from an overlooked queen, is in this case impossible.

The comb in question had not been in use for quite a while, and could have contained only dried-up eggs which the bees would have cleaned out as worthless. Had the eggs been from an overlooked queen or laying worker the introduced queen would have been killed; but this introduced queen was joyfully received and lovingly cared for.

"Somewhat surprising is it that the queen in the cage, although very fertile, did not deposit any eggs in the cells that were at her disposal. Did her instinct warn her to deposit eggs in a place where they could not be cared for by the bees, and where her progeny would have to perish? Possibly. Regardless of the secrets that the bees discreetly keep to themselves and thereby puzzle their keepers I affirm upon the foregoing carefully sifted material that the bees took the eggs dropped by the imprisoned queen and placed them in a circle around the cage."

DIET FOR BEES.

It is necessary for the well-being of our bees, as well as for mankind, that the food contain in sufficient quantity all the elements of which the body is built up, because they are gradually but continually changing through waste and repair, and must be repaired by a proper diet.

We know that bees winter well on cane sugar—as far as we can see—however, we cannot see very far. We conclude that sugar is good for winter food, and that may be right. As long as the bees are practically resting there is little waste and wear and tear of the bee organism.

Sugar is a carbohydrate containing only carbon, hydrogen, and oxygen. When the bees have to work as nurses or in the field nitrogenous and mineral matter must be supplied or they soon will be exhausted and succumb from deficient nutrition.

Dr. Langer-Gratz has shown that the bees furnish from their body the albumen in honey, and the nurse-bees the nitrogenous food for the young larvæ. Dr. U. Kramer, in an interesting article, "The Physiological Importance of Feeding Sugar," has shown

that, during the inversion of sugar that had been fed to the bees, albumen has been added.

Admitting the foregoing, we must conclude that nursing, inverting cane sugar in nectar, or in sugar feeding, drains the body of albumen, and that this loss must be replaced or the bees will be weakened and die prematurely. Therefore pollen is necessary to replace the nitrogenous substance the body is losing when brood-rearing is going on. It shows that sugar feeding for winter stores should be done so early in the fall that the bees can still find pollen to supply the urgent demand of the body. At the same time they get good winter stores, remain hardy, better able to resist disease, etc. Sugar is but a substitute for honey—never as good as good honey.

If the body of the bee is weakened during fall and winter from the lack of nitrogenous and mineral matter in their diet they will be less vigorous, and in spring dwindle more rapidly than they otherwise would. This is a serious impediment for development in spring. It is also doubtful whether bees whose bodies have been weakened by a deficient diet can, as nurses, raise a vigorous, long-lived progeny, since the larval food is a secretion of the nurse-bee. A weakened body succumbs more readily to the inclemency of the weather and to disease germs. The breeder and the keeper must unite to produce a healthy, vigorous, long-lived race of bees.

SOMETHING ABOUT POLLEN.

The *Bienenvater* published some interesting notes about pollen. It is gathered by the bees for its content of albumen and fat. It is a flower-like powder, differing much in color, size, and form. The size of a pollen-grain in the forget-me-not has a diameter of 0.0025 to 0.0034 millimeter; from the snakeweed, 0.010 to 0.014; lilac, 0.024 to .34; pansy, 0.062 to 0.071; cucumber, 0.20 to 0.23; melons, 0.20 to 0.24.

The flowers furnish a great amount of pollen. According to Darwin, a single dandelion has 243,000 pollen grains; one hazel-blossom has 4,000,000 grains, and one stalk of corn is estimated to furnish 50,000,000 pollen grains.

A. V. Planta has made analysis of pollen. That from the hazel showed nitrogenous matter 30.21 per cent; fettsaeuren, 4.2 per cent; pollen from the Scotch fir showed nitrogenous matter 16.6 per cent; fettsaeuren, 10.36 per cent.

A single bee takes for one load, according to Kirchner, 100,000 pollen-grains, and needs from two to eighteen minutes to complete a load.

It is very important that the bees visit usually but one kind of blossoms while gathering pollen. This habit enables them to cross-pollinate most effectually the plants. This is of great importance in the economy of nature, and is especially valuable to the fruit-grower.

Kempten, Bavaria, Germany.

BEES PREFERRING MOTH-EATEN COMBS

BY E. G. LADD

My experience has been that bees looking for a location invariably select hives that have been used. For years I have put out decoy hives, and have succeeded in inducing some to select these decoys for a future home but never yet have I had bees select a new and unused hive, although placed in good positions.

Moth-eaten combs left in old hives are often good decoys, presumably because of the scent emanating from them; but those bees choosing them have always cut out the old bad combs, building new. As for myself, I cut out all poor combs, leaving old brood-frames and sometimes good, clean, old combs. If old frames are not numerous enough by placing them together, filling the rest of the hive with new has also worked well. This is Wednesday; and on looking into a swarm that came last Saturday, and took possession of a hive that had four good clean combs in and six new frames, I found eight full frames with brood in five, and some frames full of eggs to the edge of the comb. A super now adorns that hive, the bees immediately taking possession. These "come-to-us" bees show up for days before they finally come to stay, and sometimes in considerable quantities; and by looking at these decoy hives I can tell where to expect a new swarm. When they do come they come straight, sometimes apparently dropping down from the clouds—no settling, but with a steady rush for the entrance. They hive themselves.

I have had some experience that points to the scent of bees lasting for some time—if not the scent, I should like some one to explain or otherwise. I have found if I can get the first of my swarms to alight in a good place, ninety per cent and sometimes all the following swarms will choose the

same place. This year has been a good one in that respect. The first swarm settled on a dwarf maple. Every one since has settled on the same maple, and nearly all on the same limb. Last year the first swarm alighted on a maple 40 ft. from the ground. All subsequent swarms made for the same spot until I cut it down. Now, how long can they scent the place, when the same place is chosen covering a period of weeks, and often many days apart?

My neighbor has had similar experience, and not a pleasant one. Six times his bees have settled on the chimney of his house, and each has been successfully scraped off and secured 30 feet from the ground. This same chimney was taken possession of by a fine swarm two years ago. They filled the space so that the furnace fire would not draw. Combs were started close to the top, and went down six feet. They were cut loose, and the bees finally killed. Query—can the bees of to-day smell the old leavings in that chimney that has been used for months as a flue? Coal was burned, and surely the scent has been eradicated. Will the wiseacres please answer?

White clover is strictly to the front just now, and a steady roar all day tells a good story. Is there any music as pleasant as the roar of the bee when honey is flooding? We have the music, and dance to the tune of well-filled supers and plenty more in sight.

Portland, Oregon.

[While it is a well-recognized fact that swarms alight on limbs where previous swarms have clustered, it seems impossible to believe that the scent could cling to a chimney that had been in use that length of time; and yet the fact that six different swarms have occupied it is hard to explain except for scent. If we did not absolutely know the unquestioned veracity of the correspondent, we might think he was telling us a "fish story," especially when he adds that the last time the swarm actually impaired the draft of the chimney.—Ed.]

HOOSIER HITS

BY S. H. BURTON.

"Brown rot" would be a good name to give American foul brood.

"It's an all wind that blows nobody good." The continued rains are bringing out the white clover wonderfully; but the bees get to work on it only between showers.

D. W. Howell, page 448, June 1, I am afraid would not think so much of a shallow brood-frame "because it does not allow so much room for stores" if he had my present conditions confronting him. Colonies in full-depth Hoffman ten-frame hives are in a starving condition. All surplus stores have been used up in brood-rearing, and a recent examination at my outyards showed the bees on perfectly dry combs, and so weakened they were unable to fly. A hive as deep as the old log gums comes nearer being the ideal size.

Has anybody observed that the clipping of queens causes a plurality of eggs in each cell? Recently I clipped a very fine golden, and now find six and eight eggs in each cell, with the bees trying to supersede her. A queen uses her wings in breaking into and getting out of the cell, and the mutilation in this way is bound to have evil effects.

J. E. Crane, page 483, June 1, should keep hammering away at this great fact about the variation in bees, not only as to their superior honey-gathering qualities but their power to resist disease. Undoubtedly nature has enabled some races or colonies to resist foul brood effectively, else there would be great danger of the race becoming extinct. We have not only found some colonies far superior to others in gathering honey, but have found in some yards every colony save one infected with foul brood. We beekeepers are not up with stock-breeders and plant-pathologists in our profession.

Washington, Ind.

[Clipping would not affect a queen's laying. Plurality of eggs in a cell is usually explained by a lack of cell room or old age in the queen. Sometimes a young queen will start laying in this way, and later lay one egg in a cell.—Ed.]

A MID-SUMMER SONG

BY GRACE ALLEN.

The mid-summer day is drunk with heat,
And the earth is a-swoon in the sun;
But the bees—oh the bees from the dawning till night
Go winging their way through an ocean of light,
Straight on to the blossoms that bloom out of sight,
And the wine of their vision is won

The warm west wind with the perfumed breath
Sinks heavily down, and is done;
But the bees are a-quiver with life as with fire!
O soul! dreaming soul of mine, why should we tire?
We too have a vision, a distant desire—
We too have the sun.

HOW SHOULD BEES, PARTICULARLY QUEEN BEES, BE SHIPPED IN POUND PACKAGES?

BY T. DWIGHT WHITMAN

Different shippers have their own ways of preparing packages of bees for shipment.

Having to make a fresh start this spring, I decided to try buying bees by the pound to avoid danger of disease. I used no old combs, and only the best of the old frames, which were dipped in boiling lye and thoroughly washed afterward in several changes of water. All hive-bodies were burned out.

The frames, after being dried in the sun, were wired, and full sheets of foundation inserted. Bees were ordered from two places in California, each distant three days by rail.

One shipper (A) used the standard Root shipping-cage with water-bottle, the queens coming loose in the boxes with the other bees. The other shipper (B) used home-made boxes with solid sides and ends with top and bottom of screen wire, a small trough for candy feed. The queen lay in a mailing-cage inside the box, and no water was supplied.

The first shipment from breeder A reached me April 5 (about ten days after date promised), at which time the plum, cherry, currant, pears, apples, and Scotch broom were in bloom. In this shipment there were eight one-pound packages (Root cages) with four untested queens loose in four marked boxes.

Colonies 1 and 2 were made of two pounds of bees with untested queens run into double hive as described in GLEANINGS, June 15, 1915, page 497. In each compartment of this double hive were three full frames of foundation and a division-board feeder with two cups of sugar and two of hot water.

The bees were shaken in front of this hive at 10 A. M., April 5. At noon the next day the bees had made good progress in drawing out the foundation; and the queen in No. 1 was laying. The queen in No. 2, however, did not lay until the next day. The weather conditions were as follows: April 5, very fine; 6, dull with rain at 6 P. M.; 7, showers; 8, fine; 9, very fine.

The bees in all of the boxes had consumed all of the feed, and in some of the cages the water-bottles were empty. There was quite a number of dead bees in some of the cages, those having water but no feed showing the most dead bees.

The shipment from breeder B arrived April 10. These were in home-made boxes with the queens confined in Benton cages inside the boxes. Most of them had been released by the bees. Their supply of feed was almost used up, no water was supplied, and, to my surprise, there were very few dead bees.

These bees were put in the same kind of hive as the others. Colony No. 5 was made of two pounds of bees with an untested queen that was still in Benton cage on arrival. The hive contained the same number of frames of foundation and feeder with the same amount of feed as used before.

Weather conditions: April 10, fine and warm; 11, showers; 12, early fine, followed with showers; 13, fine, windy; 14—19, very fine.

The bees promptly drew out the foundation. Five days later, as the queen was not laying I put in a frame of drawn comb with eggs and found, on the 21st, that queen-cells had started, but the queen was not laying, and so I broke up the hive.

Colony No. 6 was made of two pounds of bees with untested queen from breeder B; but in this case she had been released from the Benton cage, while en route, by the bees. They were run in with the queen in the other side of the double hive on three full frames of foundation with division-board feeder. They were given the same feed as the others at the same time, April 10.

This queen began to lay three days later, but scattered her eggs badly, and queen-cells were started on May 5, twenty-three days later.

Other packages from breeder A gave results as follows: Nos. 3, 4, 8, 9, and 10 showed eggs in two days. Of those from breeder B, colony No. 7 showed eggs in four days but had queen-cells twenty-four days later. No. 17 had no eggs after fifteen days.

All were put in the same kind of hives on the same kind of foundation and were given the same feed and treatment.

From the results I draw the following conclusions: While water is not essential to bees in pound packages it is a benefit. Caging or confining a laying queen injures her. Shippers of bees in pound packages make a mistake where they confine the queen in Benton cages for the bees to release on the way. The better practice is to give the queen all the liberty possible and have her loose with the bees from the start. This is easily arranged by the shipper.

Tacoma, Wash.

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

These after-swarms always reminds a feller of the things he had thought he was goin' to say, but forgot, when he made his first public speech.

Hybrids Ahead of Italians; Bisulphide of Carbon, etc.

Mr. Root:—Ants are easily vanquished by bisulphide of carbon. If in a hole in the ground, pour a little in the hole, and cover over tight. If in a nest, punch hole down in the center with cane or cart-stake, and pour, say, ½ teacupful down it; and then if you want a little fun, wait 4 or 5 minutes; stand off as far as you can, and throw a lighted match on to it and watch your ants and uncles scatter. Be careful and not let any fire get near the bisulphide. If any of the brotherhood are troubled with woodchucks, stop up all the holes but one, then saturate a small ball of rags with bisulphide, and shove down the hole as far as possible, and stop the hole tight. Mr. Chuck won't eat any more beans.

Weevil in grain or beans can be destroyed by putting some in vessels not much too large for them, and putting some bisulphide in a saucer on top and covering the vessel tight. The fumes are heavy and go clear to the bottom.

I have one hive of hybrids that have one super of 28 sections filled and capped, and another about one-half full—say about 10 lbs. in all, while the Italians—five stands of them—have practically nothing. Same treatment to all. How about it?

Wethersfield, Ct., May 18. A. N. GRISWOLD

[My friend, while it is true that hybrids occasionally outstrip full-blooded Italians, it is by no means the rule. You may have noticed, perhaps, that in poultry the first cross frequently excels in the number of eggs and in weight either of the races from which the cross came. The principal trouble with the remedy for ants is that we cannot always find the nest readily. This is often the case in Florida and other southern localities.—A. I. R.]

How to Fill Cans

I have bought honey where the 60-lb. cans were filled as full as they could be. Whether they were weighed or not I don't know; but I suspect they were filled by some one who thought they must be filled to hold 60 lbs. Cans may vary, so it was necessary to fill them full to get in 60 lbs.

If a can is filled full, and the honey granulates, and is later melted, it will expand in melting and run over, and waste about 2 lbs. of honey, besides making a smeared mess of the outside of the can.

Some beekeepers put 58 lbs. in a can.

I wish the journals would put in their grading-rule column this sign:

Leave room in cans for honey to expand if reliquefied. This would save some one lots of trouble and make better-satisfied customers.

Camillus, N. Y., June 7. IRVING KINYON.

"Bob Fitzsimmons" as a Honeybee.

While observing one day the coming and going of the inhabitants of a certain hive I noticed two bees fighting fiercely, lying on their sides facing each other, and tightly clenched. Each bee was striving with all its might and skill to reach a vital part of its antagonist with its sting and desperately guarding its own body from his adversary's weapon.

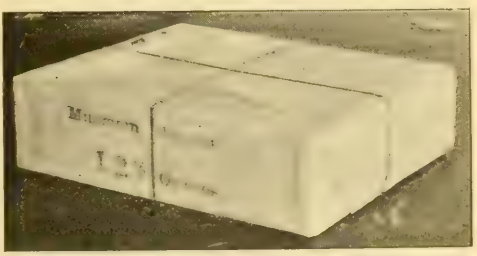
Suddenly the clinch was broken, and one bee strolled nonchalantly a couple of inches toward the door of its home, while the other, which was evidently a robber bee, and as yet uninjured, righted itself squarely upon its feet. Instantly, with a tigerish spring, its enemy was upon it. An instant touch, and it was away. In less than twenty seconds the would-be burglar had paid the penalty of its crimes.

Off guard, thinking the fight was over, it was an easy victim. Talking about ring-generalship, could Bob beat that?

Gloversville, N. Y. F. J. SHEPARD.

One More Way to Stamp Net Weight.

For branding sections with the minimum weight I use a common stamp composed of rubber letters and figures set in a hand-block similar to that ordinarily used for a rubber stamp.



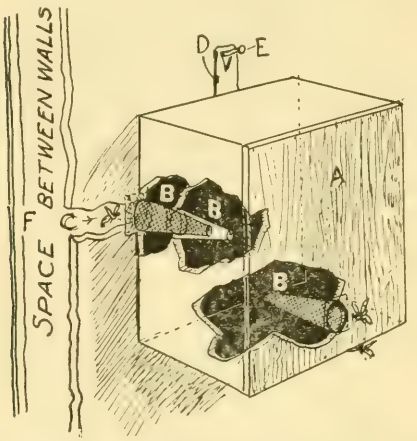
The letters and figures show plainly through transparent paper. We sell these marked sections of honey from the store every day, and have very little complaint.

Bradshaw, Neb. C. D. PALMER.

Removing Bees from Wagons

In all the articles I have read about removing bees from trees and house walls the plan was to save the colony. This is all right from the bee-keeper's view, but in case of a house, the dwellers therein want to get rid of the bees at once. They do not care to wait a month, that the beekeeper may have a new colony. This was my experience.

To expedite matters I devised the following plan to relieve a friend of annoyance. I took a box of about a cubic foot capacity, and cut holes in two sides, each about three inches in diameter. Over both these I put cone bee-escapes with the apex inside. I then made a cone to go on the building and over the principal entrance. This cone was made to fit snugly into one of the cones in the box.



Trapping them going and coming. A, box; B, B, cone bee-escapes. D, hanger. E, nail to hang box on. F, space between outer and inner wall.

I hunted out all the holes by which the bees came and went, and left the main one, plugging the others with cotton scraps wet with a mixture of creolinum and petroleum. When the bees were going and coming from the one entrance I put on the cone, then hung the box so that the two cones would engage, and fastened it there.

All the bees that were afield would come and go in at one cone entrance, and the bees coming from the house would enter the box by the other; and if the box were left there any length of time the bees, of course, would perish. But one could have two boxes and change, thus saving the bees while keeping them from annoying the people in the house.

Buck Grove, Ia. DR. A. F. BONNEY.

Every Hive Its Own Record-book

Why so much fuss and worry about keeping hive-records with brickbats, dials, books, etc?

My hives face east and are painted white. In the spring of 1913, on going over them, cleaning up, I made notations with a common No. 2 pencil on the north side, writing from top to bottom such notes as "416-4 st. s. s.," meaning that on the fourth month, 16th day, this colony had four frames of brood and was strong, but had scant stores. If I found an unclipped queen I knew she was of 1912, so drove a tack about half way in on the east side of the hive, and, of course, clipped her.

On my next round I may have made, next to my first record, such note as "53-8 c,"—meaning that on the fifth month, third day, I found eight frames of brood and queen-cells started; and so on through the season, making such notes as I considered necessary.

In the spring of 1914 I used the west side, and this year the south side, changing my tacks as new queens were reared. While my notes of 1913 are dim, they are still legible.

I make my notes of a size that can be read a distance of five or six feet, so that in looking over the yard I am able to see at a glance those hives which need attention. Also the notes are arranged in neat order so as not to look bad. Try it, brother beekeeper, and I am sure you will take to it.

Springfield, Mo. E. T. BOND.

Some Physical Effects of Beestings.

While you are discussing beestings and their cures, let me give you a little of my experience. While living in Illinois, my wife's mother was stung near the temple. She broke out all over in large blotches, and was quite sick. My wife wrapped her in a wet sheet, and in about half an hour she was all right again. There were no bad effects.

I went out to Denver one morning to look after some bees. As I rode up to the house I found quite a number of people, and heard the cry of a little child. They told me she took a stick, sat down in front of a hive, and was whipping the bees. She was badly stung on the face and hands, and the people were using whisky externally and internally, I think, with the child screaming all the time. It was a very bad case, and the child might have died. There was no medical help near, nor an automobile in those days to take her to a doctor. I told them to wrap her up in a wet sheet wrung out in tepid water as quickly as they could, and bundle her up in blankets.

In twenty minutes she was laughing and entirely free of pain.

A lady friend of ours who lived in North Denver had a swarm of bees that alighted in a tree. She climbed the tree, and, without veil or gloves, cut off the limb, but spilled so many of the bees that she was badly stung on the face and hands.

She hung to her job, however, and got the bees down and hived. She then went to bed and was quite sick. She had been taking treatment for rheumatism but the ailment disappeared after she recovered from the stings.

Denver, Col. J. L. PEABODY.

How Not to Introduce Brood Foundation.

As a novice I made one blunder against which I think I was not warned by anything I have read. My last frame of brood foundation was put in next to the division board, and now I find the bees have clustered on only one side of it to draw it out, and their weight has drawn the foundation sidewise, bagging out from the wires. Aside from the evil of the bulging shape, many of the cells must be as much stretched as if it had not been wired.

I turned it around to start the bees on the other side; but I see where I shall have a comb that will not be too good to be mutilated by pushing in a cage to introduce a queen. It may have been given too soon, for the bees had hardly finished drawing out its predecessor. Perhaps if I had waited till the bees were really hungry for another frame they would have taken hold all over it; nevertheless, my next frame will go in between combs that have bees on both sides of it, whether those combs have brood or not.

Ballard Vale, Mass. STEPHEN T. BYINGTON.

A. I. Root

OUR HOMES

Editor

And God said, Let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. —GEN. 1:26.

In the sweat of thy face shalt thou eat bread till thou return unto the ground; for out of it wast thou taken; for dust thou art, and unto dust shalt thou return.—GEN. 3:19.

All things work together for good to them that love God.—ROMANS; 8:28.

A year ago or more somebody asked through GLEANINGS whether inventors had yet produced a gasoline motor that would run a cultivator in place of a horse; and after we had spoken of the advantages of such an invention Dr. Miller reminded us that we had not said anything about the horse stepping on our plants, especially when he turns around, etc.

There is another thing I have been thinking of. At just the right time after a rain the ground will cultivate beautifully with a light cultivator, when it is too soft for a big heavy horse to tramp through the rows. Of course, people often cultivate when it is *too* wet; but the tramping of the horse does much injury in compacting the soil unless it is very dry. By the way, this present season we have had gentle summer showers so frequently—at least in our locality—that I have as yet, July 10, had no use for our irrigating system. Well, as our garden is small, and I have strawberries, asparagus, pie-plant, and other stuff where we cannot plow, and where it is quite inconvenient for a horse to turn around without doing damage, I decided not to have a horse in the garden at all this season. So I procured one of the latest easy-running hand cultivators. It did the work finely, but it was pretty hard work unless I cultivated a few rows and then did something else to rest. Of course I could have called on one of the big stout men from the lumber-yard; but of late Mrs. Root and I both have been planning to get along by ourselves as much as possible without calling on outside help. Several times when I was too tired to run my cultivator any longer (at just the right time after a shower to have our heavy clay soil work to the best advantage) I was wondering if I could not have either electricity or gasoline to reinforce my strength. As Ernest and Huber are both tolerable experts, and pretty well posted in regard to motor electricity and gasoline motors, I interviewed them on the matter. I wanted something to furnish power, and something that was light, and which I could easily handle. Huber said there was no motor made that he knew of that weighed less than 50 lbs., for gasoline; and 50 lbs. added to my hand cultivator would make it unwieldy in turning around at the ends of the rows, and hard work to handle. He said an electric motor would do it nicely. I had in mind something for old people and boys. A boy could often do a strong man's work if he had the strength. Our readers are aware, of course, that in the great wheat-fields they have a little motor attached to the harvester. It supplements the work of the team. The team pulls the machine along, and a little gasoline-engine furnishes the power to cut the grain. The difficulty with electricity for a motor, however, is that you have got to have a storage battery or a trolley wire. The storage batteries (even Edison's latest) would be too heavy, besides the expense. A very light wire would furnish all the power needed, but we would have to go to the expense of running wires overhead, and, all together, the apparatus would be too complicated.

While we are considering this matter it may be proper to mention that the Ford people are now making something to take the place of a horse. I do not know whether it will pull a cultivator or not; but I have seen an announcement that Ford expects to have 30,000 of them on the market in September. I presume, of course, it would be too heavy and expensive for what I have in mind. With what I have been saying before you, let me submit a clipping from an excellent article in the *National Stockman and Farmer,* by our good friend W. I. Chamberlain:

It is next to folly to ask incessantly, as the nonthinkers do: "How can we keep the boys on the farm?" We don't want to keep them all on the farm. With present machinery, I repeat again, two boys growing to be men can do the work once done by ten. The other eight should and will go to the cities, the great centers of manufacture, commerce, and transportation. Four things the cities must have from the country or they will die: Pure air wafted in; pure water piped in; pure food brought in on wheels, and pure, fresh human blood drawn in by a legitimate and irresistible attraction. These vast results of science, invention, and the increased use of nature's forces are, I again insist, on the whole beneficent and only incidentally and locally disastrous. And they are irresistible. "You might as well try to dam the waters of the Nile with bulrushes" as to dam this rising tide of vast benefi cence, or damn the thinkers, scientists or inventors who cause that rising tide

After reading the above I said amen to it, and then added, "Let all unite in making our towns and cities *safer* places for the boys who leave the farm to go out in the

world. Let us *make haste* to drive out the saloons, gambling-dens, and red-light districts."

Now, with our readers' permission we will let that cultivator with its bright sharp clean hoes rest a while in the shade while we talk about something else.

When I was ten or twelve years old my father rented a pasture-lot that contained a piece of woodland, and the trees in it were mostly sugar maple. I begged the privilege of using the trees for a sugar-camp. I think there must have been thirty or forty trees. I was given a kettle, some tin pails, a sharp little ax, and told to "go ahead." And I want to tell you that one of the happiest days of my childhood was when I made sugar down in the woods just below that Mogadore pond. The rest of our family of seven were pretty sure to go down to the sugar-camp when "sugaring-off" time came. I was so careful of my utensils (of course under my good mother's directions) I produced the nicest maple sugar, stirred off white and dry (like what we call "maple cream" nowadays) that no wonder friends all around became fascinated by this springtime industry. Some of you may recall that, years after, Professor Cook and I published a little book on maple-sugar making. Well, throughout all my life when springtime comes I have longed to get out in the sugar-camp and taste the delicious maple syrup once more. During those boyhood days we used to hunt up a little snow, if we could find it in some drift that had not entirely melted, and the hot sugar was dropped on the snow so as to make ice-cold maple wax. The great world may talk about ice-cold lemonade and other temperance drinks and the various kinds of ice cream; but to my notion nothing has ever yet—no, not even honey—equaled the God-given *new* maple sugar.

Once more, friends, I ask you to bid good-by to the *sugar-camp,* while we talk about something else.

Forty years ago or more, while working at the bench as jeweler and watchmaker I not only put in the orthodox ten hours, but twelve, fourteen, and sometimes fifteen hours. My digestion became impaired—funny, is it not? Well, I consulted a noted Cleveland specialist. He said the trouble was that everything I ate, especially fruits, fermented. He added that I was running a sort of "beer-shop" in my stomach and intestines; and from some unpleasant experiences I had been having I thought he was about right. He said I should first get outdoors, no matter what happened to the jewelry business; and this was quite an element in getting me started in with chickens, bees, and gardening. Furthermore, he said that if I wanted to get back to health *quick* I would have to cut off all starch and sugar—everything sweet. In fact, he put me on a diet of lean meat, principally ground beefsteak; and for *eighteen weeks* I did not taste a crumb of bread nor anything but lean meat of some sort. Some of you may think this is a rather large story. In fact, my good friend Professor Cook once said, before he knew me very well, that it was impossible—a man could not *live* on lean meat alone. From an average of about 135 lbs. I went down to 112. This was when I was riding a bicycle; and when I got warmed up I had so little weight that I could go uphill and down almost like a bird. But, dear friends, the tired and exhausted feeling that I had during those eighteen weeks was terrible. After I had become warmed up by exercise I got along pretty well. Why, I have lain awake nights longing to get a taste of some moldy crackers that somebody had thrown out in the road; and when I saw red apples ripening on the trees—well, I felt as if I would give a dollar apiece for a great lot of them if I dared disobey the doctor's orders. I got over my indigestion; but I think now the outdoor exercise with a careful diet, including grain, fruit, and vegetables, would have done about as well. Under some circumstances, perhaps many, the lean-meat diet may save life; and once in a while even now I tell Mrs. Root that I shall have to get back to beefsteak for two or three meals. I do not regret this experience, for it gave me a love for fruit, grain, and other gifts of God that I should never have had otherwise.* When the doctor told me I was all right, and that I might eat what I chose, providing I was careful, one of the first things I wanted was ground wheat, and I had a grinding-mill attached to the windmill that used to make the hives long ago. My favorite dish for quite a while was boiled cracked wheat and maple sugar or good honey. I think Mrs. Root told somebody that I ate a *panful* at a meal; but she did not say how big the pan was. I soon got back to my 135 lbs.; and after a trip to California I got up to 140 lbs. Now, I tell

* Just one word about that eighteen weeks of lean meat diet. A good many of the doctor's patients "broke over the traces." They would get real hungry for fruits and sweets, and eat them on the sly. But the doctor, with his microscope, claimed he had a method of detecting such cheats. Well, I made up my mind that I myself, and not appetite, was going to be boss. I learned self-control. I learned to be master of temper, appetite, and almost everything else. The *experience* has been of value to me, all my life. But, of course, again and again I fell back on my little prayer, "Lord, help."

you it is worth something to be able to enjoy the wheat, sugar, and honey as I did, after my long fast as you might call it.

Do you wonder how I am going to get my three rambling stories hitched together when they are so diverse? While I had in mind a longing for more physical strength to run that cultivator, Mrs. Root reminded me we had not had any maple sugar nor syrup since we came back from Florida; but we found some very good syrup in the market. Remembering the days of childhood I sugared off some and stirred it while cooling until it was white and had a soft fine grain. During the forenoon I ran the cultivator a little more than usual because the ground was exactly right after a summer shower. Now, a good many times when I get tired I take a nap and then go to work again; but while sweating and thirsty, somehow I feel a great longing for some of that nice maple sugar; and while eating it it occurred to me that I had read in the government bulletin entitled "Sugar as Food," that there is quite an element of *strength* in sugar where the digestion is able to manage it. The lady who wrote the bulletin said she had watched the colored babies in the South when sugar-cane began to be ripe enough for them to chew it and suck out the juice. She said they got all over their infantile troubles, and became fat and healthy and happy all at once, under the influence of *unstinted sugar-cane juice*. I thought I would make a test to see if a good lot of maple sugar would not take the place of the motors I have been talking about to back me up with the cultivator. I guess it was a month ago that I made the experiment. I thought I would not mention it till I had given it a good test; and it rejoices my heart to be able to tell you that a good lot of nice pure maple sugar is all the motor I want. I chew it very thoroughly, and drink plenty of pure (boiled) cold water with it; and it braces me up to do a pretty fair man's work, even if I am "going on 76." In fact, I doubt if we have a man in our lumber-yard who can clean out a garden, or who *would* clean out a garden, as quick as I do it and do it well. May God be praised for sugar, and especially for maple sugar.*

Just now I do not know that I enjoy anything much more than using that cultivator and my hoe in our pretty little garden. I would rather work in the garden than to travel, go to conventions, picnics, etc. There is another thing that makes me enjoy it; and that is, such work *bears fruit*. The children often caution me, telling me that so much sugar would do harm sooner or later. But the harm has not come. My digestion is better than it has been for years. Of course, we are not alike; and, still more, at different periods in our lives things agree or disagree. Some of you may ask why I say *maple* sugar. Well, I have tried cane sugar, but, for some reason I cannot understand, it does not "fill the bill." And, finally, my beekeeping friends will ask why honey does not answer. I have tried different kinds of honey, both comb and liquid, and *it* does not answer like the maple sugar. I do not really know why; and I am surprised to find that sugar taken *with* fruit does not seem to answer the same purpose. Maple sugar furnishes the most strength and the most perfect digestion, taken at different times during the day when I am tired and sweating. Lest you think I am getting wild, and have simply got astride of a new hobby, let me ask you to read the chipping below:

SUGAR AND THE GERMAN SOLDIER.

A German exchange reports a letter from a German soldier who is at the front in which he lauds the use of sugar. He writes: "We made some remarkable and surprising discoveries in observing ourselves and others. Even though a soldier had no liking for sugar this article became his best friend on marches and during severe cold weather. In most places that we visited the stores were 'stormed' and all the sugar was bought up. This great need for sugar, which is easily converted into muscle and heat-properties on the march and in camp, is perfectly natural. The particle of instinct that still survives the trying circumstances cries out for sugar, or tea heavily seasoned with sugar. And this is particularly noticeable in those who have had an aversion to sugar heretofore."—*Louisiana Planter.*

If it were *honey* I am writing up in the way I have above, I should feel a little deli-

* It is now July 1, several days since the above was put in type; and it is proper to say that the craving for maple sugar has gradually disappeared; but I still take a little every day—say enough to go with my strawberries and cream which I have been eating (in place of apples). If I am correct, my craving for sweets was because I have been eating so little sugar that nature called for it; and, by the way, I believe that an unperverted appetite will direct us wisely and faithfully, as a general rule, in regard to diet. My digestion is now in excellent condition. The great amount, comparatively, of maple sugar I ate daily for two or three weeks did not impair my digestion nor interfere with my health in any way. Perhaps the physical exercise I have been taking daily has had something to do with the *need* for sugar.

Very likely honey will answer just as well for most people. Perhaps I might remark that maple sugar, if I am correct, is a product of the New World—America, and I believe I have read somewhere that when our forefathers first began boiling maple sap and found it would grain and make sugar there was great rejoicing; and I feel quite sure, also, that inasmuch as it does not pass through the same chemical process as does our white sugar from beet and cane, it is a more natural diet, and more wholesome. In Florida much syrup is made from different varieties of cane grown in the gardens; and I believe the people who make their own syrup in this way find it more healthful and wholesome than the sugar made in the great factories from beet and cane.

I have seen it stated somewhere that our own state of Ohio produces more maple sugar and syrup than any other state in the Union.

cate about giving it; for some of my enemies (come to think of it, I don't think I have any *real* enemies just now) who are disposed to take exceptions to these Home papers might say, "There, just see how A. I. Root is puffing his own wares." And I should hesitate, too, about giving the above to you if it were true we now deal in maple sugar and maple syrup as we did some years ago. Our present business has so increased that we were obliged to give up all outside issues, and never expect to handle the maple product again.

Our first text tells us that God planned to give man dominion over everything that grows—animal and vegetable, and we are just now beginning to wake up and take in what that promise includes. Just think of it! The oil under the ground that nobody knew anything about for ages—where would our automobiles be now were it not for this oil? and I might use a page or pages in enumerating the blessed gifts that for ages have been trodden under foot—sweet clover, for instance. We *tried* to tread it under foot, but it would not "stay down."

In regard to the second text, I cannot be happy—that is, *very* happy—unless I work at something that starts the perspiration every day of my life. In fact, it is hard for me to read your kind letters and dictate answers for an hour or two without going out into the garden. If it had not been for the "sweat of my face," I should not have discovered that the product of the maple tree is a motor to reinforce my strength in old age far better and grander, and infinitely more simple, than gasoline or even an electric motor. "All things work together for good to those who love God."

Finally, dear friends, the work that I love—in fact, I might say the greatest joy of my life at present—is hunting up God's gifts, and particularly getting in touch with others (including the Department of Agriculture), who are in a like manner developing God's wonderful precious gifts, *planned before the beginning of the world,* to bless and make happy the children whom *he* loves and the children who love *him.*

"WHERE THIEVES BREAK THROUGH AND STEAL."

When we built our cottage just south of Bradentown, five or six years ago, our carpenter picked out a lock for the front door, that cost, I think, two or three dollars. I took it back to the hardware store to change it for a cheaper one; but the dealer thought that was just the lock we needed on such a building. I replied, "My good friend, I agree with you that in a locality 'where thieves break through and steal' such a lock is doubtless the very thing; but here in Manatee Co., where we have never had an open saloon, and where thieves do *not* break through and steal, a cheaper and less complicated lock will be all that is needed." Although we have left our home and premises here in Bradentown for the last half-dozen summers, I have been proud to tell the people there in Ohio how safe and secure places like my own are where people spend only their winters in Florida.

With this in mind you can imagine how pained I felt to get the following letter from my good neighbor Mr. Harrison, whose home is close to my place:

Dear Mr. Root:—Wesley has just been over to tell me that some one or, rather, *two* people, visited your chickens last night. He saw where they got over the fence and scattered some feathers. It looked as though a chicken came near getting away by the looks of the ground and the feathers left there. The tracks evidently were made by men, not boys. Wesles is distracted about it. I don't see any way to head them off but to move the chickens away for a while. It would not pay to set a watch nights, because they may not come again for days or even weeks, for that matter, and yet they may come every few nights until all are taken; and if they found no one to interfere they might take the whole lot one night. C. S. HARRISON.

Bradentown, Fla., June 26.

I hardly need tell you, good friends, that the loss of the chickens mentioned above is but a small matter—just a drop in the bucket compared with having Bradentown and Manatee Co. lose the good reputation it has enjoyed for so many years; and, more than that, letting the culprit go unrebuked for his foolish invasion of our premises. Up here in Ohio it is a penitentiary offense for stealing chickens. I do not know how it is in Florida; but it is of much importance that little acts like these should be restrained at the outset. All good Christian men and women should unite in helping to discourage this sort of pilfering, and encourage law enforcement, if nothing else will answer.

I have repeatedly spoken of the good habits and good behavior of the colored people of Manatee Co., contrasted with other places; and, in fact, at just about the time this happened I made the following mention in our journal of the state of affairs in our neighborhood:

Let me repeat what I have said about Manatee Co., Florida. There has never been a saloon in that county, and, God helping us, there never will be one. As a result, my good neighbor Mr. Rood had a poultry-house undisturbed for years right up against the fence along the highway. A passerby could, in fact, reach through and get a chicken if he wanted to, and yet our population is largely *colored people*

whose loose habits and fondness for "chicken" have been proverbial.

There is still another aspect to the matter. If the one who is guilty of this act could be kindly taken in hand he might repent and never be guilty of the same act again. Remember the beautiful promise, "He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins."

Later.—After the above was in type Wesley sent me the following:

I've moved all the chickens over to Mr. Rood's. There are 35 old laying hens and 35 young chickens I took to Mr. Rood's, and those are what are left. There were 7 ducks left also. Mr. Rood says if they had been left there every one of them would have been taken. Chickens are being stolen all over the whole neighborhood.

Manatee, Fla., June 29. WESLEY WELCH.

From the above it appears that between forty and fifty of my chickens were stolen, mostly old hens. Well, if such things must go on, it is no more than fair that I should have my share of it. I cannot now recall that during the past sixty years during which I have had more or less to do with chickens I have ever had any stolen before, although I have had frequent reports from others who have lost in that way. Not only for the good of the hard-working people who are deprived of their honest earnings, but that this sort of pilfering may be checked at the outset, will it not be well for poultrymen to combine and form an organization such as we used to have years ago when horse thieves were so common? If it is true, as Wesley states, that the whole neighborhood is suffering from the loss of chickens, it behooves us to combine, and in that way I feel sure we can ferret out the guilty ones. I will gladly do my part, both in time and money.

My good friend W. P. Root just informs me that over sixty years ago the farmers of this county, and Wayne on the south, formed what is still known as the "Union Perseverance Company for the Detection and Apprehension of Horse Thieves;" and so effectual was this company that they claim no thief ever yet escaped their clutches. Aided now by the telephone, horse-stealing is a thing of the past in this section.

Perhaps, dear friends, there is a providence in the loss of my forty or fifty chickens. It reminds us to wake up and look after transgressors.

Would it not be in line for the Sunday-schools, the Endeavor societies, and the Y. M. C. A. to take hold of this sort of *missionary* work?

HIGH-PRESSURE GARDENING

CORN-PLANTING, ETC.

We are raising some pretty good corn here on our own premises; but scarcely a season passes but that I learn some lessons and see where I have blundered. To illustrate:

Our ground was nicely fitted. Our seed corn was so carefully saved and tested that I threw out only three ears from 100; and as our two old hand corn-planters did not work just to suit me, I bought a brand-new one, and our three acres of corn was to be planted with this one planter; but when the man got about half through the field Mr. Calvert, noticing a storm coming up, borrowed two more planters of a neighbor, and set two extra men planting. As a result, the corn was all in nicely just before the big drops of rain came, and we were congratulating ourselves that we had managed so nicely. Well, when the corn began to come up we were worried sometimes by finding six or seven stalks in hills planted with the borrowed corn-planters; and, in fact, all through the field there are more or less hills having five or six stalks. I believe it is pretty well decided that, even if it is a big job, it pays to go through a cornfield and pull out all over four stalks in a hill. I think some claim there should not be more than three stalks.

Now, I have a confession to make on my part. I know there are sieves in the market to screen out all the small grains; but with our small field of corn I decided it would not pay. But what do you think it cost to go over that field and thin it down to three or four stalks in a hill? Well, it cost enough to buy two more brand-new planters, and perhaps a sieve to sort the grains as well.

There is another thing that can be done and should be done. After each ear of your seed corn has been tested for germination, pick out all the ears having the largest kernels, and put them by themselves. Pick out those having the smallest grains in the same way, and make two if not three grades. When you begin planting, adjust your planter to drop three or four grains of the large size. When the large size is gone, adjust the planter for the medium size, and, lastly, the small grains or give them to the

chickens, which, perhaps, would be the best way. I suppose these boy corn-growers have been all over the above, and are probably better posted than I am.

There is one more point that might be considered right here. One of our experiment stations, by means of a suitable sieve, or by hand sorting, picked out the largest seed corn, wheat, beans, and a whole lot of other things. They tested the large seed side by side with the small or inferior seed. If I recall correctly, the big seed by the same treatment gave almost double the crop. I think there were some exceptions to this result; but the decision was strongly in favor of using the very best seed obtainable whatever you undertake to grow; for "whatsoever a man soweth, that shall he also reap."

FETERITA AS CHICKEN FEED.

Since the article on page 558 was printed I have received pictures of my feterita in Florida. One of them shows the feterita higher than a man's head, and yet the seed had been planted only about 45 days; and I think that in 60 days, with good warm weather, especially with good warm weather *at the start,* you can have grain fit to feed to the chickens; and if you have a hot dry time the feterita will not mind it very much. The other non-saccharine sorghum (kaoliang) may do better still, but the seed is much smaller. It is now making a tremendous growth here in our Medina soil. From the above you will see there is plenty of time now to sow or plant either of the above and get a crop of grain before the frost will hurt it. Feterita seed is advertised in our various catalogs. If you want just a *few* grains for experiment I will send you some of either, free of charge.

SQUASH-BUGS — ESPECIALLY THE YELLOW STRIPED VARIETY.

This year, as well as last, we have had a regular pitched battle for the last two weeks in trying to save our melon and squash plants. Just as it was last year, the first I saw them was on Sunday morning. They came in a swarm, and would have had my nice thrifty vines, just coming out of the ground, chewed up before night. I went and got my wire-cloth baskets, such as I used last year, and pushed the edges of them down into the ground, and made everything tight, as I supposed. But the bugs were either hidden down in the dirt, near the roots of the plants, or they hatched out in the ground. Perhaps some of our readers can tell me if the latter is possible. As I did not have baskets enough to cover them all, I tried moth-balls, which seemed to succeed so well last year. But this time they paid but little or no attention to them. After the vines—especially the squash-vines —got so large they were cramped and crowded in the wire baskets, I was obliged to take them off, and then I commenced picking by hand. The bugs fly so quickly that it is a pretty hard matter for an old man to catch them before they are gone. But I crushed them up between my thumb and fingers, and dropped their mutilated bodies among the plants, hoping the rest would take warning.* Finally I read in one of the seed catalogs that *tobacco dust* would do the business. At first it seemed to keep them away; but they soon became used to the tobacco, and I was afraid the tobacco dust would eventually cost almost as much as my melons and squashes would amount to.

Well, my plants were finally so badly mutilated that I decided they would never amount to much unless they had some extra care and manure. So I procured some old black rotten stable manure containing quite a little cow manure. I scraped away the dirt from the plants so as to get down near the roots; and, even if my compost was rather bad-smelling, I spread it around all my plants, then covered the manure with nice mellow soil in order to prevent evaporation. What do you think? There was no more trouble from the bugs; but in going over my twenty or thirty hills, by mistake I missed one. Next day there was not a bug on any of the plants where I had placed the manure; but on the one plant that was skipped by accident it was almost literally alive with them. I think somebody said a while ago, through GLEANINGS, that old rotten cow manure (or it may be *fresh* manure) would keep off the bugs; but I had forgotten it. After I had got it all done, Mrs. Root suggested that if I had put a fair-sized shovelful of it into each hill, well mixed with the soil before I planted the seeds, perhaps I should not have had any two-weeks' fight on my hands. Summing it all up, my experience is that these bugs are repelled by any strong odor or perfume.

* By the way, when you do not have very many plants, hand picking is perhaps the surest and simplest method. When the bugs are at their worst it may be necessary to get around and pick them off the plants every two or three hours; and if this is followed up faithfully they will soon give up the job. When they get the impression that the owner is going to get around about once in so often they will soon decide that it is unhealthy business and move off into some other garden. Some of you may recall that in our potato-book Terry insists that hand picking is the cheapest and simplest way to get rid of the Colorado potato-bettle, and that is just what I am doing now. I caught the mother-bugs when they first made their appearance, and it was not a big task either. I do not like poisons of any kind if we can manage to get along without them.

It does not make much difference whether it is moth-balls, strong tobacco dust, or foul-smelling stable manure.

KAOLIANG; A NEW GROUP OF GRAIN SORGHUMS.

The above is the title of a 64-page bulletin, quite well illustrated, from the Department of Agriculture. It appears from the summary that there are 27 distinct varieties of kaoliang; and more or less of them have been tested in the United States for a number of years past. The Department also sent me one pound of seed. It was planted June 16, and to-day, the 21st, it is up very nicely. These grain sorghums are tremendous growers when the weather is favorable. We happened to have quite warm weather and warm rains after the seed was planted. The seed is quite a little smaller than that of feterita; but it cooks much quicker—at least the sample sent me did, and it tastes very much like feterita. We copy the following from Mr. Meyer, who was sent by the Department to China to investigate:

Of the many crops the Chinese grow in North China, the sorghum is unmistakably the most important and the most useful. Without it life in a great part of North China and Manchuria would be almost impossible, for the variety of uses to which the kaoliang is put are legion, and it could not very well be replaced by any other single crop.

The light-colored varieties are ground into flour, out of which cakes are made, or they are simply boiled in water and served in the form of a gruel to the Chinese laborers, and it is amazing to see how much a Chinese can eat of it. I have seen my own interpreter eat three big bowlfuls for breakfast in the early morning and still feel comfortable. As a feed for horses and mules one certainly can say that the kaoliang seeds, especially the dark-colored ones, in North China and Manchuria, take the same place that oats do with us.

The stalks of kaoliang are almost as valuable to the Chinese as the grain itself. In the semiarid north, where all of the wild arboreal vegetation has either been exterminated, or at least has been reduced to such an extent as not to form an important item any longer, one finds that the stalks are the chief supply of fuel. They are used to cook the food, to heat the brick bedsteads in winter time, to boil the water for tea; in fact, are used whenever heat is needed. Another important role they play is in the fine fencing material they furnish. In North China, in winter time, the icy wind blows with great violence all over the plains. To protect themselves, at the approach of the cold season the Chinese build fences around their houses, yards, pig-pens, etc., and comfort would certainly be still more reduced in North China if these kaoliang-stem windbreaks were unobtainable.

These stalks are used also as supports for plants in the vegetable gardens. They serve as poles for beans, cucumbers, and yams. They also lend themselves to basket and matting making, and in Shantung I even observed highly colored varieties that were grown for the express purpose of furnishing fancy basket and matting materials. In making the finer qualities of baskets the outer skin only is used, being split off by hand and woven into the various articles desired by skilled men and women. For large coarse baskets, however, the whole stems are taken while they are still fresh, for when once dry they cannot be manipulated very well.

Still another use the Chinese have for these stems is to chop them up, mix them with a few handfuls of boiled black soy beans, or kaoliang seeds, or bean cake, and serve them to their hard-working horses, mules, and donkeys—in the greater part of North China about the only food the draft animals ever get.

One would think by this time that the list of uses for the stems was pretty nearly exhausted, but there are still a few more; for instance, when an ordinary Chinese laborer builds himself a home he first erects a frame of poplar and willow poles; between these he places kaoliang stems. The whole frame is then smeared over with mud, in which chopped-up straw or hair has been mixed, and the house is then ready to move into. In the primitive greenhouses of the Chinese these sorghum stems serve as bars to hold the paper windows. They also constitute the frame of the roof upon which the clay is smeared.

There are several minor uses yet for these stems, such as frames for kites, paper animals, playthings for children, etc., but I am afraid that the list would be too long to add here.

A last item about the kaoliang: Even the roots are not allowed to stay in the ground, but are carefully grubbed out by a stroke of a peculiar hoe or grub and a pull with one hand, are dried, stacked up in bundles, and sold and used all over the land for fuel. One certainly might ask, what would the farmer of North China do if he had no kaoliang to fall back upon?

My impression is just now that, as feterita has a much larger grain, and is a much greater yielder, it will be found more profitable. But it may be that kaoliang is going to be superior as a food product. Below is a report from our friend Mr. Harrison, just at hand:

Friend Root:—I am sending you four heads of feterita, one each of Egyptian wheat, and chicken corn. Your garden is looking fine. Some feterita planted since you went away is 4 ft. tall. Wesley also planted some sweet corn that was given me, that is beginning to tassel and silk. It is about 4 ft. high. Everything is looking correspondingly well. The chickens like the feterita better than corn. The birds like it also.

Bradentown, Fla., June 16. C. L. HARRISON.

The feterita that was planted after I left must have made a growth of four feet in a little over forty days. The fact that chickens prefer it to corn is also in its favor. I have instructed Wesley to gather the heads and give them to the chickens every day. As the feterita is close by their yards it will make a very short cut from producer to consumer; and, if I am correct, if the heads are cut off as fast as they are fit for food, new heads will keep coming right along from the suckers. The Egyptian wheat and chicken corn also resemble feterita, but the grains are very much smaller. The chicken corn is, no doubt, a splendid feed for small chickens.

Later.—I have just received word from Wesley that he has been feeding feterita to the chickens for the past two weeks; and he says there will soon be a second crop grown from the numerous suckers.

FETERITA FOR CHICKEN FEED.

The following from our good friend Ault, of Bradentown, will explain itself:

Your feterita is great. Wesley has been cutting the ripe heads, and wherever a head has been cut one, two, or three more are putting out. The feterita will, no doubt, greatly reduce your feed bill.

JABOTICABA, THE "GRAPE OF BRAZIL."

As this new fruit-tree is receiving considerable attention, not only in Florida, California, Texas, but in other warm climates, I have thought best to give the clipping below, taken from the *Florida Grower;* but, as I understand it, the article was written by a Mr. Popenoe, sent out by the Department of Agriculture to hunt up new and valuable plants. On page 473, June 1, I spoke of the two little trees we have in our Florida garden.

Among the many indigenous fruits of Central and Southern Brazil, few create so strong an impression on the new comer as the jaboticaba, not only because of its habit of producing its deciduous fruit on the trunk of the tree from the ground up, but also because of the unusual beauty of its symmetrical, dense, umbrageous head of light-green foliage, which entitles it to a place among the best ornamental trees of the region.

The tree is generally considered the handsomest of all the *Myrtaceae.* Under favorable conditions it grows to a height of 35 or 40 feet, the trunk nearly always branching close to the ground. The leaves are opposite, ovate-elliptical to lanceolate, acute at the apex, generally glabrous, with the margins entire. They vary from three-fourths of an inch to over three inches in length, their size being one of the characters by which the different horticultural forms are distinguished. The flowers are small white, produced in clusters on the bark from the base of the trunk to the ends of the smaller branches, sometimes so thick as almost to hide the trunk from view. In form they resemble those of the myrtle, with four small petals and a prominent cluster of stamens. The normal season of flowering is said to vary with the different species, although it is quite a common occurrence for the trees to flower and fruit several times during the year, when they are in cultivation and supplied with an abundance of water.

The fruit, which develops rapidly, and ripens within two or three months after the time of flowering, is round or slightly oblate, half an inch to an inch and a half in diameter, deep, glossy maroon-purple in color, crowned with a small disk at the apex. White, sessile, or nearly so, in some varieties, in certain others the fruits are produced upon slender peduncles, not over one inch in length. Between the two extremes in size there are many gradations, those considered the largest usually found in the markets, averaging about an inch in diameter. The skin is thicker than that of the grape, and considerably tougher. It contains, besides coloring matter, a large amount of tannin. The translucent, juicy pulp, white or tinged with rose, is of a most agreeable vinous flavor, suggestive of the rotundifolia type of grape. This similarity to the grape is not confined to the flavor alone, the external appearance, character of the flesh, the size and number of seeds, as well as the flavor, all bearing such a striking resemblance to the grape as to have earned for the jaboticaba the title of the "grape of Brazil." A good jaboticaba is so thoroughly agreeable as to tempt one to keep on picking and eating the fruits indefinitely, a temptation to which strangers as well as Brazilians often yield.

The fruiting habits of the jaboticaba are somewhat unusual. When heavily laden the tree is a curious sight. Not only is the trunk covered with clusters and masses of glistening jaboticabas but the fruiting extends to the ends of the smaller branches, which all produce their share of the crop. When one stops to consider the small size of the fruits and their abundance all over the tree, it is apparent that the numbers produced by a tree of large size much be enormous. While the fruit is adapted to a number of different uses, at present most of it is consumed in the fresh state, frequently direct from the tree.

In Brazil, propagation seems to be exclusively by seed, although the foreman of one of the principal nurseries in Rio de Janeiro stated that he had successfully inarched young trees, and considered this a desirable way to perpetuate choice varieties.

"SUGAR AND ITS VALUE AS A FOOD."

The above is the title of Farmers' Bulletin No. 535, containing 32 pages, written by Mrs. Mary Hinman Abel. From it I make the following extracts:

The addition of sugar to an ordinary or to a meager diet also considerably increased the capacity for work, the effect of the sugar being felt about a half hour after eating it, and its maximum effect showing itself two hours after eating. The coming of fatigue was also found to be considerably delayed on this diet, and taking 3 or 4 ounces of sugar a short time before the usual time for the occurrence of fatigue prevented the appearance of it.

It is true that the harvester, lumberman, and others who do hard work in the open air consume great amounts of food containing considerable quantities of sugar, such as pie and doughnuts, and apparently with impunity; but it is equally true that people living an indoor life and that undue amounts of pie, cake, and pudding, with highly sweetened preserved fruit, and sugar in large amounts on cooked cereals, almost always bring indigestion sooner or later.

Sugar is a useful and valuable food. It must, however, be remembered that it is a concentrated food, and therefore should be eaten in moderate quantities. Further, like other concentrated foods, sugar seems best fitted for assimiliation by the body when supplied with other materials which dilute it or give it the necessary bulk.

You will notice it comes in very nicely with what I said in the Home papers in this issue.

NO BEES, NO HOME, YET WANTS GLEANINGS AND THE HOME DEPARTMENT.

I am both a librarian and a social worker, with little spare time, no home, and no bees; but I have loved bees and wondered at them as far back as I can remember; and it was a joy to stumble across such a completely satisfactory current study of bees as GLEANINGS one day in a seedsman's store. However, what has made me really *miss* the little magazine is the warm friendliness and good comradeship that makes itself quite evident in spite of the impersonality and coldness of print. They have often been an inspiration and a comfort to me. I shall be very glad to be back in the circle around the editorial easy chair of Mr. Root's Home department and Dr. Miller's Stray Straws, Mr. Doolittle's Conversations, and the other good editor-friends, as well as among the interested listeners of the words of the occasional article-writer friends.

HELEN M. L. FOLK.

Philadelphia, Pa., June 25.

SPECIAL HONEY PLANT NUMBER

AUG 9 - 19



Vol. XLIII AUGUST 1, 1915 No. 15

Southern Headquarters for Italian Queens



Photo of W. D. Achord of Fitzpatrick, Ala., with helpers, also his queen-rearing yard. Queen-house and residence in background. With six experienced men, and 600 mating-boxes, also 700 full colonies of pure Italian bees, we are able to give good queens and prompt service. Untested queens, 1 to 11, 50 cts. each; 12 and more, 45 cts. each. Tested, $1.00 each. No disease. Pure mating and safe delivery I guarantee.

W. D. ACHORD, Fitzpatrick, Alabama

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Center of business on Grand Circus Park. Take Woodward car, get off at Adams Ave.

200 Rooms, Private Bath, $1.50 single; $2.50 up Double
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100 Rooms, Private Bath, $2.50 single; $4.00 up Double
100 Rooms, Private Bath, $3 to $5 single; $4.50 up Double

TOTAL 600 OUTSIDE ROOMS. Absolutely FIREPROOF. ALL ABSOLUTELY QUIET.

Two Floors—Agents' Sample Rooms New Unique Cafes and Cabaret Excellente

Gleanings in Bee Culture

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VOL. XLIII. AUGUST 1, 1915 NO. 15

EDITORIALS

Our Cover Picture

Is there a more fascinating part of beekeeping than the study of the flowers on which the bees depend for their honey? And is any part of this study more entraneing than the photographing of such blossoms? We are proud of the illustrations in this special number, although we wish that all of our readers might see the clearness of detail contained in the original photographs.

Our cover picture, representing the wild hawthorn, is the work of Wesley Foster, whose article appears on page 619.

Quarantine on Shipments of Bees in Nevada

The governor of Nevada has recently issued a proclamation establishing a quarantine against all states for the shipment of colonies of bees unless accompanied by a certificate from a duly appointed state or county inspector. This does not prevent proper interchange in bees, but it will prevent the shipment of bees in car lots or in small lots from irresponsible parties from other states who have the disease. It would appear that the beekeepers in Nevada appealed to the governor, with the results stated.

The Net-weight Law, and its Effect on the Comb-honey Business

Evidence is beginning to accumulate, showing that a great many do not understand the net-weight law. They are afraid of it; and this very ignorance of its provisions, as well as the knowledge of them, is causing many to give up the production of comb honey.

We also find that some are going into the production of chunk comb honey in pails. This may be right in some localities; but we believe it will be a serious mistake to foist that kind of honey on the northern markets. As soon as it granulates (and it granulates readily) it will sell for only a little over half its former price. Chunk or bulk comb honey will granulate much more readily than honey in sections. In a like manner extracted honey will granulate more readily because of the disturbance to which it is subjected in taking it from the comb. But clear extracted honey, when it granulates, is not injured.

Ontario Association Collecting Crop Reports

As usual, Mr. Morley Pettit, the secretary of the Ontario Beekeepers' Association, is sending out requests for crop reports in the form of return postal cards, one side addressed to the beekeeper, and having on the back the following to be filled out:

HONEY-CROP REPORT TO BE MAILED NOT LATER THAN SATURDAY, JULY 31.

How many colonies, spring count: 1914 1915
Total crop of white extracted honey
Total crop of white comb honey
What prices have you received?
Name ..... County .....
Address ..... Township .....
Date ..... Con .....Lot .....

Be sure to report for 1914 as well as for 1915. When exact amounts not known, estimate as closely as possible. Poor crops or failures should always be reported, to keep the average right.

A system of accurate crop reporting is of inestimable value in a locality. What greater service can a local organization of beekeepers perform for its members than that of determining what the crop is and what prices are being secured?

The Editor of the Western Honey Bee Gets Some Honey

It will be remembered (see page 304 April 15, and also page 393 of our May 15th issue) we referred to our interview with the editor of the *Western Honey Bee* at his home a few months ago. We wrote him some little time ago, making some inquiries along honey-crop conditions and other matters. Apologizing for delay in replying to our letter he writes:

Mrs. B. and I, entirely without help, have (mis-) managed 381 colonies of bees (spring count); increased by natural swarming to over 500; taken off, cased, and *sold* over 500 cases of comb honey,

and a ton of extracted; treated about 40 cases of Black brood and half a dozen of American; introduced over 50 young queens, and, not least important, kept the *Honey Bee* toddling along on its somewhat wabbly legs, all since I saw you last.

Thanks for all the nice things you said about us. More biscuit and honey awaits your next visit

We congratulate Editor Bixby on his success this year, notwithstanding the conditions seemed to be against him earlier in the season. While the crop of comb and extracted honey was not large, it was a great deal better than he expected, and especially for making increase from 381 to 500 colonies. But it will be remembered that Mr. Bixby was an old beekeeper in New York for many years. He then went to California and now seems to be no inconsiderable part of the honey-producing interests of that great state.

Referring to those biscuits and honey, it is almost worth a trip to California to bump up against Mr. Bixby's enthusiasm, and enjoy the hospitality of him and his better half. Those biscuits! Words do not describe them, especially when they are flavored with Bixby's honey.

If he or she is flooded with a lot of visitors who wish to sample those biscuits Mrs. B. will either have to decline with thanks or charge it all up to the editor of GLEANINGS.

Complaints against Certain Advertisers; when Patience Ceases to be a Virtue

IT is expected in the ordinary course of business that some little misunderstandings will occur between the advertiser and his customer; but all of these can be and usually are adjusted amicably. The chief complaint we have is where the advertiser of bees or queens announces that he has stock on hand ready for prompt delivery, but yet fails to deliver till some time after the order is received. In many and most cases, if the customer wants a queen he wants her at once. The delay may mean the loss of a whole colony. Sometimes the stock is very inferior—much below the advertised specifications. Again, the advertiser may fill the order promptly, but if the queen dies, fail to replace.

To receive a man's money and hold it for a month, and then deliver a queen, or several of them, is not doing business on the square. While we are not anxious to get mixed up in petty quarrels, squabbles, or controversies, we feel a certain moral responsibility in getting differences adjusted.

We may find it necessary to do a little free advertising—that is, if some people do not do better. In other words, we will publish the plain unvarnished fact or facts which will speak for themselves.

We have certain advertisers who have been with us for years and years, against whom we do not know that we have ever had any complaint; but there are certain other advertisers whose records are not altogether satisfactory. If any of our readers have not been treated fairly by any of them we shall be glad to do what we can to get a reasonable adjustment; and failing in that we may have to give somebody some free advertising. It is not fair that those who do a clean nice business year after year should be compelled to compete against irresponsible people who do not give satisfaction.

Honey-crop Conditions; Prospects for Clover Honey Improved

THE United States weather maps and reports from all over the northern clover belt show that there have been frequent rains every few days since the fore part of July, warm and hot spells following these rains, during which the bees did some work in gathering clover and basswood honey as well as sweet clover. These frequent rains have stimulated the growth of clover amazingly in the more northern states, so that even at this writing it is still in bloom and will continue up to the 15th of this month, or even clear up into September. In all of our thirty odd years in connection with this journal, we do not remember a time when white clover and alsike stayed in blossom as long as they have done this year, especially with a prospect that they will remain so in many localities the rest of this month.

Our subscribers have been very liberal in sending in reports, and we have received a larger number since our last issue than at any time in the season. These all go to show that the prospects for clover honey have materially improved. While it would be unwise to make a positive prediction at this time, there are many indications to show that this will be a far better clover year than last year, and it may even rank as one of the good years. The conditions this season have been more favorable for the production of *extracted* than of comb honey, because the flow has been slow; but there may be a big yield of clover extracted. But of one thing we are sure—there is from a light to a fair crop already in sight.

Reports with one or two exceptions show that basswoods have yielded well where any

are left. Sweet clover is more abundant this year than for several years back. The frequent rains have given it a big boost; and some of the white-clover honey will have a slight flavoring of sweet clover. A little of this honey in clover always improves its flavor; and those who have a combination of the two will probably secure fair prices.

Most of the white-clover honey will come from the following states: Northern Ohio; parts of Pennsylvania; Vermont, Michigan, Wisconsin, Minnesota, Illinois, Iowa, Missouri, and Kansas. In all of these states there will be spots where there will be no honey. Most of the poor reports are from the southern states. In Delaware, Maryland, and New Jersey, as well of a larger part of the New England states, there will be an almost complete failure of honey. The same is true of most of the southern states south of the Ohio River. Reports are unfavorable from Oklahoma, south Texas, and parts of Oregon and Washington. In the two last-named states there have been too many cold rains and too much chilly weather.

In Texas it has been the reverse—too dry and hot.

California seems to be coming ahead much better than the early reports indicated; but still it cannot be claimed that the aggregate yield has been up to the expectation of its beekeepers. Some have secured good crops; but the great majority have only from poor to fair yields. But enough has been secured so that already a couple of carloads of sage has gone east. This will be shortly followed by alfalfa from the Rocky Mountain states. If the yield from eastern clover should prove to be large it would make a slight slump in the price of alfalfa and California sage extracted. But of this no definite statement can be made—probably not before our next issue or even till the first of September.

Prospects for buckwheat honey are very good in those sections of the country where it is grown—particularly in New York.

For some reason we have almost no reports from Canada. Whether this indicates a failure of honey or not we do not know; but as the conditions have so materially improved in New York, northern Michigan, and Wisconsin, we should naturally assume that the same atmospheric conditions would favor at least a light crop in Ontario, Canada.

Reports are not numerous from the Rocky Mountain districts in regard to the probable yield of alfalfa honey. But there seems to be a sort of under-current of feeling that there will be nearly if not quite the same yield that there has been formerly. As a general proposition the irrigated regions of the Rocky Mountain states are more sure of a crop than almost any other part of the United States.

PRICES.

At the present writing it would appear that prices on first quality No. 1 and fancy *comb* honey will be firm. Whether they will hold up to last season or not we cannot say. Prices on clover and alfalfa extracted, of best quality, will probably be a little easier than last year, although unfavorable weather during the rest of this month in the clover districts might give them an upward trend.

Reports from most of the states south of the Ohio River have been decidedly unfavorable. The cold backward rainy weather in June and the fore part of July prevented the bees from getting any honey; and when the weather warmed up it seemed to be too late for the clovers to do much good. Most of the reports from the northern clover states, if we except the New England states, and Delaware and New Jersey, are good—very good. Most of the poor reports come from the southern states south of the Ohio River, going as far west as Texas.

Prices on southern honey on account of the general failure in the south ought to be firmer than last year. They cannot be weaker, that is sure.

How to Get a Cheap Automobile Truck for Beeyard Work

WE have been using, for two years back, a regulation automobile truck with our outyard work. It has a capacity of 1500 lbs. weight and at a speed of from ten to twenty miles. At the maximum speed the engine has to go at a terrific rate; so the speed in practice is not much over fifteen miles an hour. This however, is three times as fast as a team can go.

This year we rigged up one of our old five-passenger automobiles (an Overland), 35 horse power, which has been used for five or six years. Last winter the engine and the running-gear work were overhauled, the body removed, and a regular wagon-box or truck-box was substituted, at a small cost. In our general beeyard work it was our intention to use this built-over fast-speed truck in preference to our regular automobile truck of slow speed. As a matter of fact, the former is oftener used; while the touring-car truck will not carry more than half the load, it goes so much faster and easier that we have found it more profitable to use. It is seldom that we desire to carry more than 700 lbs. weight; and the fact that it has an

economic speed of from 25 to 30 miles an hour makes the distance between beeyards comparatively short. The larger tires, the larger wheels, and better springs, enable the boys to go more in comfort, and with less shock and jar on the combs, when bees are removed to an outyard. We found, also, that 700 to 800 lbs. is about all that we desire to carry at a time. By doing a little head work we can plan to carry a good many tons of freight in a season. We are always carrying something. When we get into the extracting season, one big extractor with a complete outfit can be put into this fast truck, thus saving the expense of an extracting-outfit at each yard.

Good second-hand five-passenger automobiles can now be purchased at from $150 to $200, and $50 ought to supply such a machine with a truck body with high sides. Never buy a second-hand automobile without getting the advice of a disinterested expert. A good machine should not cost to exceed $250; and a second-hand automobile truck would cost twice that, nor would it begin to be as serviceable. Fast speed and comparatively light loads are more practical than a slower speed and heavy loads for ordinary outyard work. At other times the touring body can be substituted for the truck body and the whole family take a ride.

For a picture of our converted touring-car automobile truck see Fig. 4, page 590, of our last issue.

Going too Far with Live-bee Demonstrations

We have just received a newspaper clipping relating an incident where a beekeeper has been giving live-bee demonstrations; and was severely stung. It seems he had been advertising that he would "take a bath in live bees." He stripped himself to the waist and poured the bees into a pan and then poured them over his bare back and chest. There is nothing so very awful about that kind of work if it is properly done. But the average person makes a bungle of it. In the first place, he should take only gentle bees, and in the second place he should not use the same bees more than once; and in the third place he had better not strip himself to the waist. Bare arms, head, and neck "will astonish the natives" just as well as the bare back and chest; and the danger of being seriously stung is not nearly so great.

It appears that our operator referred to in the clipping was so badly stung on the bare back on one of these occasions that the doctors had to work over him half the night before he could be relieved. Then, according to the newspaper report, he proposed to go right into another demonstration the next day.

We cannot too strongly condemn such foolishness. While there are lion-tamers who can stick their head in a lion's mouth, too many have their heads crushed to make the practice safe.

We have given some two hundred live-bee demonstrations, and with one exception we have never been stung more than two or three times all told. The exception referred to was where we were foolish enough to borrow another man's hat. The hat proved to be an old one, literally soaked with sweat and dirt; and when the bees were dumped into it they immediately showed their aversion by boiling over; and when the hat was placed on our head the bees stung us, not once but several times. Of course we removed the hat and gently combed the bees off from our head as though nothing had happened, and went on with the lecture, and no one was the wiser; but next time we made up our mind that we would use our own hat.

There is no need of one being stung at such demonstrations providing he does the thing properly; and a live-bee demonstration will draw a crowd for the purpose of selling honey as will nothing else.

We take a gentle strain of bees and shake them into a tin dishpan. Then we roll them over a couple of times. We next gently run the hand into the mass of bees, taking care not to pinch a single bee. The movement must be very deliberate. It takes about a full minute to pick up a handful of bees. To push or crowd the bees too fast will cause them to sting. A common dishpan that is slightly greasy is better than anything else. The bees cannot stick to it, and it is our usual plan to roll the bees into one hand. There is no danger of being stung if one is careful not to pinch the bees. With the handful of bees we walk down into the midst of the audience, and explain why they do not sting. Following this we shake the handful into our own hat, then place the same on the head, and continue the lecture. We have sometimes put a few bees in the mouth and blown them out. While we have never been stung more than once, we consider this an unnecessary demonstration.

A couple of years ago, for the benefit of the moving-picture men, two of our men offered to strip to the waist. We then took a large panful of bees and poured them over the backs of the boys. In the mean

time the camera man was catching the whole performance. But a couple of the boys were stung, but not bad enough to cause any trouble—two stings in all being the number received.

The average beeman should be warned against this kind of performance. Where one is immune to stings and understands the job, there is not much danger; but look out for the first time.

Temper of a Colony of Bees Dependent on Locality and Environment as well as Weather Conditions

Did you ever notice that bees in an open yard, without shade or shrubbery, are apt to be crosser, almost invariably, than the same bees or the same strain of bees located in a grove, orchard, or in any position where there is low shrubbery sufficiently high to screen one hive from the other? When the Texas shipment of bees arrived at Medina we placed them partly in the home yard with its grapevine trellises, and partly in our outyards, most of which have no shade. It was very noticeable that the Texas bees were much crosser at the outyards where every hive is exposed to plain view than the same bees (or strain of bees rather) at the home yard screened by the grapevine trellises. These vines were anywhere from five to seven feet high, and about four feet wide, and they stand immediately back of or on the south side of the hive. If the operator happens to strike a cross colony, the bees that have offered attack soon lose track of him because he is screened by vines out of their sight when working the other hives. On the other hand, if the operator happens to stir up the bees at an outyard where the view is unobstructed at every hive, those same bees will follow him about until he finishes his work at the yard. They will attract other bees, with the result that he will receive more stings than he will from the same strain of bees at the home yard that lose sight of the operator as soon as the hive is closed.

Our grapevine-trellis apiary affords a screen and protection to our boys in a way that we do not have at the outyards; and even when those outyards are in groves or orchards, the bees are not quite as easily handled as those in the home yard where every hive is screened behind a trellis of grapevines.

At the ordinary yard it is practically impossible to find a better spot to afford protection than these yards screened by low shrubbery or by an orchard. In locating yards it is better to place the entrances as far as possible from a cultivated field. A span of horses switching their tails may obstruct the flight of the bees, thus causing trouble; so we are obliged at times to select an open spot of ground where every hive is visible from every other hive. The ideal location for any yard is a spot not near the general highway, remote from cultivated fields, with individual screens for each hive in the form of vines or low shrubbery which will cast its leaves during the cold part of the year, so that the warm rays of sunshine will be available when they are most needed, and become shut off during the middle hours of the day in hot weather when they are a detriment.

Permit me to add that Ernest submitted the above to me before it was put in type, knowing what I had in mind when I planned a hexagonal apiary with a grapevine for shade on a small trellis for each hive, something like forty years ago. At the same time, I experimented with different kinds of grapevines, and found the Concord less trouble to train as I wanted it than any other variety. Most other vines require too much pruning and clipping to keep them within bounds. It is gratifying to know that my convictions at the time have been "proved out."—A. I. R.

Why Bees Work on One Species of Flower at a Time, and Neglect all Others; an Interesting Study

On page 519 of our July 1st issue we spoke of that big field of yellow sweet clover near the home apiary. We went over to see it a great many times. The low and contented hum of the bees, thousands and thousands of them as they went through the blossoms, was something worth seeing and hearing. But all through that sweet clover there was alsike, for both were sown together.

We noticed that the bees that worked on yellow sweet clover paid no attention to the alsike. This same fondness for the same species of blossoms has been noticed in all the bee-journals for years back; but long, long before the observation was made in the bee-papers, Darwin, following Aristotle, had called attention to the same remarkable specializing on the part of the bees.

One day we spent nearly an hour to see if we could detect a single bee that would go from sweet clover to alsike or from alsike to sweet clover; but not once did we notice a single case.

Admitting that the bees do specialize (and there can be no question on this point), why do they do it? The suggestion has been made that a young bee, when it goes out into the fields, gets into the habit of going to a single species, and it keeps up that habit so long as that species gives up its treasure. But why should it not take a sip here out of one blossom and a sip from another entirely different species, and thus have a little variety of flavors? The suggestion that one bee finds it more convenient to work a single plant and another for another because they learn how at the beginning, does not altogether satisfy us. Is it not more than likely that the great Creator might plant an instinct that works to the advantage of the insect as well as to the vegetable world? The very fact that one bee gathers only one kind of pollen or nectar on a trip makes it possible for that bee to bring about better pollination among those particular plants than if it worked hit or miss among a dozen different flowers that might be in bloom. Mixed pollen from different species would not pollinate a particular species. For instance, apple-trees, while of all one species are of different varieties. In order to get good crops, fruit-growers know that they must mix the varieties. The same is also true of pears, peaches, and a great variety of stone fruit. The pear-growers know that it is not good practice to put the Bartletts all by themselves, the Seckels by themselves, and the other varieties by themselves. There must be one row in alternation with another in order to get the best results. The same is true of apples and other fruits. The busy bee comes in, and goes from one variety to another, bringing about cross-pollination; but bear in mind these apples all belong to the same species. The very fact that the bees follow that habit of working on only one species at a time renders it possible for them to carry only one kind of pollen at a time, thus bringing about a better pollination than if they carried a mixed pollen.

It cannot be argued that the bee has in mind the production of a big apple crop for the benefit of the fruit-grower. Nay, rather, it is concerned only with its own need of supplying nitrogenous food to its young. Would it not seem then that the allwise Creator had implanted an instinct by which the bee, for a reason of its own, which we cannot discover, would do the very thing that would help out the plant world at the same time?

We find all through nature a beautiful harmony. Sometimes man disturbs that harmony, with the result that disaster follows. Certain plants, by a display of color, nectar, pollen, or all three together, invite the attention of certain moths and butterflies. Others seem to attract the diptera, or certain flies, while the blossoms of edible fruits and certain grains seem to be especially adapted for supplying bees with a food that they must have.

Some, perhaps, may doubt whether there is an "understanding" between the animal and vegetable kingdoms, or, to be more specific, between the bees and the fruit-trees, yet how else can we explain this beautiful adaptation unless the allwise Creator has brought this about in order that his great creation, man, might enjoy the product of the hive as well as that of the apple-tree?

There is a beautiful adaptation between bird life and plant life. Destroy the birds, and our useful plants and trees would perish from the attacks of injurious insects. Without food for man, he would soon become an extinct species along with all other forms of life. If we go into certain localities we see certain birds and certain plants and certain animals all work together in harmony.

On one of our western trips we asked why the ranchers did not kill off all the coyotes. They said it was for the simple reason that the coyotes kept down the jack rabbits, and the rabbits would be a pest unless there were something to hold them in check. If the small boy with his toy gun were allowed to shoot birds indiscriminately we should soon be overrun with certain insect pests.

If we reverse the rule we find that if we try to grow more fruit than the natural bees in the woods can take care of, much of the fruit will not mature. A few years ago when cranberries were grown in the Cape Cod region (about ten or twenty acres), it was discovered that the big plots would not yield in proportion as the small ones did. When bees were imported into that locality—enough so that the balance of Nature was restored—they could grow as many cranberries per acre in a ten-acre patch as they formerly could on a half-acre.

Perhaps this may seem like a long diversion from our original theme; but it only goes to show that the allwise Creator has brought about a working balance; and in order to keep up that working balance bees have been taught to specialize in endless ages until the instinct has been so thoroughly implanted that it is compelled to bring about perfect pollination that could not be accomplished indiscriminately in their quest of food for their young.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



My bees were on the verge of starving in June: clover plenty abloom, but too cold for flight, and I fed much as described on p. 522, only I used sugar syrup and poured it on top of the *sections*.

H. P. Kirby writes that for bee-hunting purposes he uses vinegar instead of water to dilute honey because it attracts bees more strongly. He also says that vinegar added to sugar syrup greatly increases its attractiveness, which may sometimes be quite an item.

B. F. Averill speaks of bees gnawing basswood splints, p. 538. If given when bees are storing, and the bees build comb over them, I have never known them to be gnawed afterward. If they are given when there is no storing or building, the bees are likely to gnaw them, and, what is very much worse, the foundation is badly gnawed.

More and more I am learning that I mustn't set down my experience as the experience of every one. The Byer-Chadwick discussion brings up another point of difference. When friend Chadwick's bees go queenless in spring he expects laying workers. I've had many a case of laying workers, but I don't remember a single case in spring. By the way, friend Chadwick, you say, p. 525, "as a last resort, a worker is chosen to perform the functions of a queen." Did you ever know a case of a laying worker and not a whole lot of 'em?

J. L. Byer says, p. 440, he has heard queens quahk in a box in the postoffice. First time I ever heard of a queen quahking outside a cell. But I know no reason why she shouldn't. Some have said quahking is the same as piping, only muffled because in a cell. But the length of time of the notes is entirely different. [If you were in an office where four or five dozen queens were lying on a desk preparatory to being sent out in the mails you would hear a good deal of piping. We have heard them answer back and forth time and time again.—Ed.]

A. I. Root, last year you sent me dasheens so late they made little growth. I wintered them in the cellar in the same box with *Caladium esculentum*, or elephant's ear. I planted all this spring, and they didn't come up till July 1, and I can't tell by their looks whether to admire their beauty or to eat 'em. Fact is, except for size I don't see but dasheens are just as pretty as caladiums. From the name, "esculentum," one would expect the caladium to be edible. But I've tasted it raw, and it bites like an Indian turnip. Cooking might correct it.

C. H. Cargo, I've studied no little over your letter, p. 518, and wondered whether you mean just what you say. You want "a healthy sentiment created that refuses to allow any party to try to monopolize our voters, but insists on every party," etc. To my certain knowledge there's been a healthy (?) sentiment of that kind for 40 years; our forces have been scattered, and the devil has chuckled over it. If we wait until *every* party has a prohibition plank in its platform, we'll wait some time. Don't you believe if we had all got together in some one party we might have finished up the saloon before this? [The principle is all right; but the trouble is, there has been a condition and not a theory, and that condition has been that the great majority of the voters would not desert their old party. Whether they will in the future remains to be seen. In the meantime, regardless of parties, the temperance question from an economic standpoint is moving forward by leaps and bounds. Insurance companies, manufacturers, bankers, railroad companies, business men, city property, country towns and country districts, are finding out from a financial point of view that they cannot afford to tolerate the saloon. Indications at present go to show that financial considerations plus moral and religious reasons will oust the saloon in the near future. "Safety first," and the cost of damage suits as the result of unsteady brains or brains crazed by liquor, are having a tremendous effect on the big corporations of the country. Moderate drinkers are not wanted, and regular drunks are nuisances. The labor unions are beginning to join against the common enemy. Banks that formerly bought brewery stocks as a good investment are discovering that they are the poorest kind of security; while many of them have stood with the wet crowd because of their holdings, they are now dumping those holdings because they are not worth the paper they are printed on. Great breweries are going into the hands of receivers. Saloons are voluntarily going out of business because they don't pay. Revenue receipts fell off more than seven million dollars in the Peoria district the past year because of the movement toward the elimination of whiskey from the life of America. Peoria is the greatest distillery city in the country. The mighty wave of public sentiment is getting in its work. State after state has been going dry.—Ed.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Does anybody know a better way to celebrate a holiday than picnicking out in the hills, visiting a beeman or two on the way? It was by far the best thing we could think of to do on the Glorious Fourth. There were four of us, the other two also with bee sympathies, one to the extent of five colonies as a nest egg down in Alabama. The day (Monday, the 5th) was perfect, the country fresh and beautiful from recent rains. Out in the hills, to be reached only by a delightful drive, we came to one apiary of one hundred and twenty odd colonies, the strongest-looking colonies I ever saw. But the crop was as dismal as our own, only on a larger scale—practically a failure; viewed in the light of expectations, a distinct failure. After watching the bees and talking shop awhile, we drove back out of the hills to the pike again, and turned off to the river. There we were ferried across stream, and headed according to the ferryman's directions toward another bee-yard. The road ran along the river, between a tangle of growth that brushed our faces on the right, and an apparently interminable field of corn on the left. Neither one seemed to have an end; and as it was getting late, and we were all developing a prodigious interest in the generous lunch-basket and the freezer of peach ice cream, and were reminding one another of the ferryman's ominous remark that we had better be back by sundown if we wanted to get back to our own side, we gave up and turned back. Whatever that farm may or may not yield as to a honey-crop, there are four of us prepared to testify to the excellent corn prospects.

Unfortunately, this honey-crop failure seems uniformly true of the immediate Nashville vicinity. The winter stayed too long, the bees built up too late, the clover came too early, the rains came too late, there was too much bad weather during the clover bloom.

And perhaps there wasn't much nectar in the clover blossoms anyway. Of that I'm not quite sure. Anyway, the most of what little honey there is seems to be locust. And there are many disappointed beekeepers. One man says he will not sell enough honey to pay for the supplies purchased last winter. "Bees haven't done a thing," others say. Our own crop is practically nothing; and as we have been making some nuclei, we expect to be feeding soon, which, indeed, is likely to be the lot of many of us here. I hope this disastrous shortage may be quite local. Some parts of the state, our inspector reports, show very fair results.

SONG OF THE YOUNG QUEEN-BEE.

Out of the warm, close, waxen cell
I have come, I have come!
Out of mysterious silence and growth
Straight into life I have sprung!
And the far, dim past of my ancient race
Leaps in my blood, and I know my place
In the midst of the motion and hum.
All these, they are thousands, and I am but one—
I am queen—queen!
Vivid and slender, with gossamer wings
Woven of shimmer and sheen.
And something within me, with urging and thrill.
Makes me a-quiver my fate to fulfill.
I am queen, queen, queen!
Not you, royal sisters, astir in your cells,
But I—I!
Who willed it? I know not; but this thing I know—
I shall live, you must die!
You too are slim-bodied with cobwebby wings,
But passionate life surges through me and sings,
"It is I, I, I!"

* * *

I not only agree with Mr. Doolittle page 486, about saving bee-journals, but I would especially emphasize the thought of reading them thoroughly before you save them. Read them thoroughly, and, unless you object, mark them too. At the end of the year you will get an index; but you may want to refer to them many times before that. Read with a pencil in your hand, and you can check the things you care especially for. Then make an abbreviated notation on the white margin of the cover, and then how easily you can find things! Glancing at random through our 1915 copies of GLEANINGS, I find one copy marked 242, inc (increase); 236-7, f. b. (foul brood); 249 bnd'g jrnls (binding journals. Some of them, evidently marked hurriedly, show merely page numbers, as 291, 307, 381, 397, etc., while on the pages themselves are checkmarks calling attention to the paragraphs of articles of particular interest. The July 1st cover says, "Doolittle on Honey-getting, page 259." None of us are in danger of knowing too much, and constant study is surely well worth the effort.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



CROP CONDITIONS

In the Rocky Mountain region, honey-crop conditions are still up in the air, so to speak. In Idaho many discouraging reports have been received. Wind has interfered with the flow in the Idaho Falls district, and feeding was done until the first of July, and in some places probably later.

Cold, cloudy, and rainy weather in the Twin Falls district kept the bees from taking advantage of the first crop of alfalfa. Bees went backward in May and early June, but feeding was not necessary as late as in some districts. Prospects are good now (July 10), and early July saw many colonies building queen-cells, and most colonies will doubtless make some surplus honey.

Reports from Utah are discouraging in the extreme on account of the ravages of the alfalfa weevil.

Mesa County, Colorado, has had no flow from first alfalfa, and grasshoppers are reported very bad, with prospects poor.

Garfield County reports a good flow early in July, and fair prospects.

Delta County conditions are fair to good with indications that some new comb honey will be taken off by the middle of July.

Conditions are backward in Montrose County, with nothing favorable to report.

In the Arkansas Valley new honey is reported being stored in the hives in and about Canon City and in the Ordway district. From Rocky Ford to Los Animas conditions are very much behind what they should be, and little new honey showing.

In the lower Arkansas Valley things are a little better, bees having stored some honey from first crop of alfalfa, only to go backward early in July; but to-day, July 10, things seem to be picking up, and some colonies are beginning work in the comb-honey supers and extracting-chambers.

Swarming has begun in the southwestern part of Colorado, and prospects for a surplus crop are fair.

In northern Colorado prospects are the poorest of any place in the state. This condition is largely caused by the fact that the bees are not ready for the honey-flow, or very few of them are. In large areas there was a dearth of pollen and also a lack of stores. Many beekeepers did not feed sufficiently; and where pollen was scarce it did little good.

If Boulder County has half a crop of honey I shall be agreeably surprised. Many colonies have gone backward until they are little more than nuclei.

Sweet clover looks fine; and with good weather appearances might change, and a fair crop be harvested; but a nucleus in July cannot be counted on for surplus.

To sum up, a few restricted districts will have a crop of honey this year; but a general good yield is past hoping for.

NON-SEPARATORED OR SEPARATORED HONEY.

Mr. Latham, page 530, July 1, says that, after weighing thousands of sections of both separatored and non-separatored honey, there is no more variation in weight in one than in the other. Did Mr. Latham weigh his own honey, or was it the honey of the average beekeeper? I will controvert the statement if he will apply it to the average producer of marketable comb honey.

I have seen sections of non-separatored honey, practically all sealed, weighing not more than eight ounces. I have not seen any separatored honey as light as this. I have seen non-separatored honey, completely sealed, weighing 21 ounces; and I have never seen a separatored section of honey weighing over 17 ounces. I have in mind the 4¼x4¼x1⅞ two-beeway section.

If as good results can be secured as Mr. Latham says he gets, there is ground for the belief that some commercial honey-producers would profit by discarding separators; but it will require closer attention to super work than most honey-producers give; and the extra time taken would doubtless offset the advantages.

I agree with Mr. Latham that all comb honey should be cartoned; but why does he refer to the bottomless-topless carton when you are supposed to slip the section in from the side, and the two-beeway section then practically seals the package? It is, of course, not as closely sealed as the regular carton.

I think the argument that the flat surface of separatored honey tends to strengthen the idea that comb honey is manufactured is a poor one. I have never heard it. The most damaging idea the public gets is the comb foundation used by beekeepers, which many people think is manufactured comb, and the fact that often beekeepers buy large quantities of sugar to feed the bees. Added to this, the granulation of honey has its effect on the public. These are our obstacles.

Take the product of fifteen beekeepers who use separators and fifteen who do not, and pack both lots and size up results.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



It seems that our eastern brothers have been getting a taste of the same variety of weather that reduced our orange flow at least 75 per cent.

* * *

Spreading brood is rarely necessary where a young queen is at the head of the colony. Their first operations will extend the brood-nest just about as fast as their bee force will permit. Even the fault of the bees blocking the way with pollen is greatly reduced with a young queen. Some way they seem to get matters to move along much better than with an old queen.

* * *

The value of wired combs was most forcibly illustrated to me recently when four colonies that were being moved on an auto truck fell with a thud. Aside from slight damage done to few combs, and the crushing of a few bees, the accident was not serious. With unwired combs the whole lot would have been a mass of broken combs and dead bees, making the loss almost complete.

* * *

My queen-rearing this season has been carried on by Mr. Byron Crawford, who was with me last season and part of the previous one. He has become interested with me in the bee business on general lines, and I hope he will remain with me for many years to come. While he has been out of his teens only a few years, he has a store of knowledge on bees of which any young man of his age might well be proud.

* * *

Judging from scattering reports from various localities in the southern end of the state, there will be no very large crop of honey in the sage districts this year. Had this been the year for a sage flow we would have seen the largest crop of sage honey in recent years. Some are inclined to the belief that they have a sage crop this year; but the fact remains that they secured only a comparatively small amount, considering the immense rain, and late rain at that.

* * *

The value of young queens, and what they can accomplish, has been more thoroughly proved to me than ever during the last few weeks. Requeening was begun with colonies that were not requeened last season, and that failed to come up to standard. With vigorous young queens these colonies have forged to the front, while colonies with last season's queens were slowing down in their brood-rearing operations and decreasing in numbers. The fact most significant to me was that where a vigorous young queen began operations, even the worst honey-bound brood-chambers were cleared for her, and the honey moved above the excluder.

* * *

We have had some perplexing experiences during our operations of requeening. Many cells have been lost by being torn down in mating-hives. It a protector was used then the queens would be balled for a few days, or even after returning from the mating-flight. Colonies hopelessly queenless have killed as many as three laying queens. The only plan of introduction that has a score of 100 per cent safe was by the method recommended by Mr. Doolittle. But just to prove that new conditions are met from time to time, and that the bees are sometimes on their good behavior in spite of all precedents, I will state that only a few days ago Mr. Crawford and myself discovered two young queens less than a month old laying in the same brood-chamber. We have placed one above an excluder over the other, and will see if they will remain so during the winter, or whether one will eventually disappear, as is so often the case where two are left in the same hive during the winter.

* * *

Late in May I purchased twenty-three colonies of bees at what might be considered a very low figure. A few were in frame hives. Nearly all the frames were not wired, and in a part the bees had taken the liberty to build the combs crosswise of the frames. Most of them were in any kind of old box that happened to be at hand when the swarm was captured, ranging in size from a small soap-box to an orange-box. Twenty dollars was the price paid for this conglomeration. Hives were brought from the Tremont apiary with full sets of combs and an excluder. The bees from a box were smoked and jarred out of the box on to a set of frames. As soon as the queen was down, an excluder was placed over the hive and the box placed over the excluder. In three weeks the brood had all hatched from the boxes and they were removed, thus making a complete transfer without the loss of any time in the operation. If we had followed the old method of transferring combs to the frames the price would have been excessive.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



I am glad to see that recommendation of Carniolans, on page 520. Although I have given them up pretty well, owing to a European foul-brood scare, yet I still really believe a good strain of Carniolans to be the very best bee, all things considered. The swarming propensity is overestimated in most cases, and we never had any trouble to speak of, but, of course, we used large hives.

* * *

F. C. Greiner's article on page 549 in the matter of foul brood and the effect it has on the industry of beekeeping is interesting and instructive. But I cannot refrain from making a kick because he does not label the brand he has been dealing with. This is a common error; and, while excusable on the part of a beginner, it is hardly so in the case of Mr. Greiner. Many of us will know at once on reading the article that he is referring to European or black brood, but others will not think of that, and perhaps try the plans given with our old friend American foul brood. The point is that, while the treatment he recommends is no doubt up to date for the disease he has in mind, for American foul brood it would be worse than useless. This criticism is made in all kindness; and in mentioning this particular article it is simply to emphasize the fact that a lot of similar mistakes are being made all the time, to the confusion of many who are not posted on the two diseases which are so radically different and require such different treatment.

* * *

As predicted in last batch of "Notes" for this department, the clover flow here in York County has been very light. Absence of showers early enough, and too much cool weather, is responsible. While we had abundant rain during last week, at this date clover is about over and the surplus is very light. Bees here in many cases were in poor condition for what flow we had, as the very bad weather that lasted all through May and much of June caused a heavy loss of field bees; and when clover came on we had hives filled with brood and baby bees, but a lack of fielders.

Basswood never looked better, but we have little. In localities where there are lots of trees there should be a good chance of some nectar from that source. This is written July 7, and the bloom on basswood will not be open for a week. At our north location chances are yet good for a crop from clover, as it is later there and much more abundant. Basswood buds up there which gave a great showing were all frozen in the late June freeze. Buckwheat in York County is a heavy acreage as compared to other years, and much is sown early, which will give a long time of blossoming. Some of it is so early that if, by chance, we should get a basswood flow the two will likely go together.

* * *

Having mentioned the large yard we have up north at various times, some seem to think that these far-north locations are a sort of paradise for beekeepers. This opinion is gleaned from considerable correspondence that has come to me lately. Northern Ontario has lots of room for beekeepers, and in some seasons the country gives good returns from the bees—no question about that. But it is well to remember that, the further north one goes, extremes of temperatures, especially in regard to late spring and early fall frosts, are far more apt to cause damage than in more southern localities. Our north yard is only 100 miles from Toronto, and yet the difference in these matters is considerable as compared to our home apiaries not far from this city. For instance, the frost of May 26, already mentioned, did little damage to honey-producing sources at home, while up at the north yard, where we had a splendid showing for basswood, all the buds were frozen from the trees.

Then, again, there seems to be some confusion on the part of some as to the location where we have our bees; and it is well to remember that Ontario is a big province, and our bees are not in the northern part at all, strictly speaking. While our apiary is but 100 miles from Toronto, the great clay belt now being settled is over 300 miles north of Toronto at the south side of the tract running nearly as much more north and hundreds of miles west. Up there, clover, willow-herb, and raspberries are the main sources of honey; and while there is generally lots of honey flora for the bees, as before intimated, weather conditions are more uncertain one year with another the further north one goes.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



NEW QUEENS IN THE ANNEX

"When a hive is so full of bees that the bees begin to think about clustering out, they will crowd into an empty space which may be about the hive, much sooner than they will go on the outside for the same purpose. Suppose that as soon as the sections are filled with bees, and before the swarming fever comes on them, we bore a three-inch hole in one side of the hive, and on the inside put a piece of queen-excluding metal. Bore a similar hole in an empty hive; cover it with queen-excluding metal, and set this empty hive right up against the other having the bees in it, so that the holes match. Then put a queen-cell in this empty hive. Now the point I wish to know is, will there not in time be a new swarm of bees in that empty hive?"

I doubt whether this will work just as you have outlined it; but there may be something in it, if the plan is modified. From past experience I am convinced that, if the bees did go into the empty hive on the return of the queen after mating she would enter the wrong hive, and in all probability be killed or balled by the bees until crippled and spoiled for usefulness, even if she finally superseded the old queen.

But what is there to hinder putting one or two frames of brood and one of honey in the empty hive and then giving the queen-cell? I would not warrant the bees going freely from one hive to the other to care for that brood and queen-cell. If the young queen should consider the old queen in the parent hive her rival, so as to go to the excluding-metal and there challenge her to a combat, the bees would doubtless ball her till she was no good, or she would turn up missing, as is usually the case when such a combat is challenged.

Many claim that a queen emerging under such conditions will be cared for just the same as if she were in an isolated hive or nucleus, and in due time become fertile and go to filling the combs with eggs. From scores if not hundreds of attempts to work out the plans with dual queens in a hive, as given by the late Mr. Alexander and others, my experience has been that this cannot always be depended upon. In having queen-cells cared for and reared above and behind queen-excluding metal, I have had the best of success with the mother queen doing duty just the same as if her progeny were not perfecting them by the score on the other side of a perforated metal. It is only when the young queens from these cells begin to assert their "queenhood" that the trouble seems to arise.

"Would not the plan as I have given prevent the original colony from swarming? If so, this will make unnecessary some one staying at home Sundays and other days to watch for swarms, besides proving a boon to those having out-apiaries which they wish to work for comb honey.

Well, as I said before, I do not think it would work just as you gave it, but by using the suggestion given, as I have explained, I see no reason why it should not stop swarming entirely. As soon as the young queen lays, or before the old colony is strong, take one or two more combs of brood from it and put in their places frames of empty comb or frames filled with comb foundation, so the bees will have no chance to build drone comb, quitting the brood thus taken out over into the hive having the young laying queen. As soon as the flowers from your main source for surplus honey open, the original colony should have the surplus arrangement put on, in which are "bait sections." The first honey will be put in the sections rather than the combs in either hive, thus making your prospect of success even greater than it could be otherwise. At the same time, sections should be placed over the part of the new hive where the brood and combs are, so that in no case the bees lack room to store all the honey there is coming in. I would have these sections in every case filled with foundation, so that the bees would have no desire to swarm by being loath to build comb.

Occasionally, or as often as the out-apiary is visited, move more frames of brood over to the new hive, putting frames filled with foundation in place of the frames taken out each time until the new hive is full, always putting on sections in the case of either hive, as the colonies seem to require. If the new colony is a little slow in taking advantage of the sections, give bait sections to this also, as the results will be enhanced by getting the bees at work in the sections at the earliest possible time as regards the honey-flow. When well at work in the sections, and in the early part of the flow, raise the first super and put another under it, to induce the filling of as many sections as possible.

GENERAL CORRESPONDENCE

BLOOM IN THE COLORADO FOOTHILLS

BY WESLEY FOSTER.

For three years I have followed the practice of moving my bees to the foothills for the spring bloom. Until this year it has yielded very satisfactory returns. In 1913 it was possible to double the number of colonies by June 15, and have all colonies ready for alfalfa and sweet clover in June,



Thimbleberry. A bee can be seen on the blossom in the center.

July, and August. This moving was and is expensive, as two moves are worse than a fire, they say; but when bees are concerned, it hardly works out so disastrously.

I have this spring moved in only 160 colonies; and while they have done well, the flow from white clover and dandelions has been good where my apiaries are permanently located, so that the value of moving has not been so very apparent. The late hard freezes in May and June destroyed the nectar-secreting powers of the flowers in large part. Early in the season we had fine prospects from the horsemint; but this plant is seemingly very susceptible to frost injury, and a large proportion of the plants were stunted or killed outright.

This year I have been taking a census of the wild flowers upon which the bees gather honey or pollen. First among the mountain bloom I place choke-cherries, then hawthorn [Cover picture.—ED.] and thimbleberries.

A little later (in June) come the astragalus, penstemon, oreocarya virgata, the lupins, wild geranium, and numberless others that I will tell later.



We had fine prospects from the horsemint.

The astragalus, if I have been informed correctly of its name, is very attractive to the bees. I have been calling it wild alfalfa, for the reason that the odor of the blossom resembles alfalfa bloom. The astragalus has a pea-shaped blossom, not so compactly placed as alfalfa bloom, but of somewhat the same color, though not so blue as alfalfa. The plant grows about eight inches in height, and probably comes first, or ranks first, along with the penstemon as a favorite with the bees. The penstemon is a blue and light-blue blossom growing on a stem about eighteen inches high. It is a beautiful plant, and I have seen five bees at once on a single stalk of blossoms. Wild geraniums are very well liked by the bees, and would be more important if there were more of them.



The odor of the astragalus resembles that of alfalfa bloom.

The lupins comprise many varieties, and are very numerous this spring. The bees are not found so thick upon them; but from the abundance of the plants I would judge that the nectar secured is not insignificant in the aggregate.

While the wild bloom is not our source of surplus, it is so very important in the spring that we cannot ignore it. Western beemen will do well to become familiar with the mountain and plain wild flora of the western states.

Boulder, Cal.

SOME ODDITIES IN NATURAL LAWS

BY EDWIN G. BALDWIN, A. M.

A few days ago, even before we were up, our attention was drawn to the south window of the bedroom at our home, where, through the open casement, was wafted to us the sound of humming bees. I arose to see the cause. On examination it was at once clear to me that the bees were busy on a flowering shrub that fills, even to the eaves, a corner of the house formed by a bay window projecting toward the south.

The busy little workers were swarming over the plant, which is a jasmine (not a jessamine, for the two are distinct—*Jasminum officinale,* to be exact). It is half shrub, half climber, covered much of the late summer and fall with myriads of snow-white blossoms, each about half an inch in diameter at the outer edge of the petals. It is rather fragrant, though not nearly so fragrant as the star jessamine, with which it is sometimes confused.

Now, we knew that the petals of this

jasmine are too long and narrow for bees to reach the honey at the base of the corolla. Only butterflies, millers, hummingbirds, etc., can reach the base of such deep petals. Consequently we had not thought that honeybees would be attracted to the flowers at all. Imagine if you can, therefore, our surprise on seeing the bees hovering about and working on, not the blossoms, but on the bases or stubs (calyx or ovary of the blossom) left after the petals had fallen off! The white petals fall very early, leaving the vine full of the green bases or stubs,



The penstemon unilateralis. Three bees are working.

in the bottoms of which we could distinctly see a tiny drop of nectar shining. It was for this nectar that the bees were visiting the shrub. They were tarrying lovingly over and dipping into the bases, not merely running over them, as they sometimes do when in quest merely of pollen. They were getting honey too, for their distended bodies showed that their visits were not in vain.

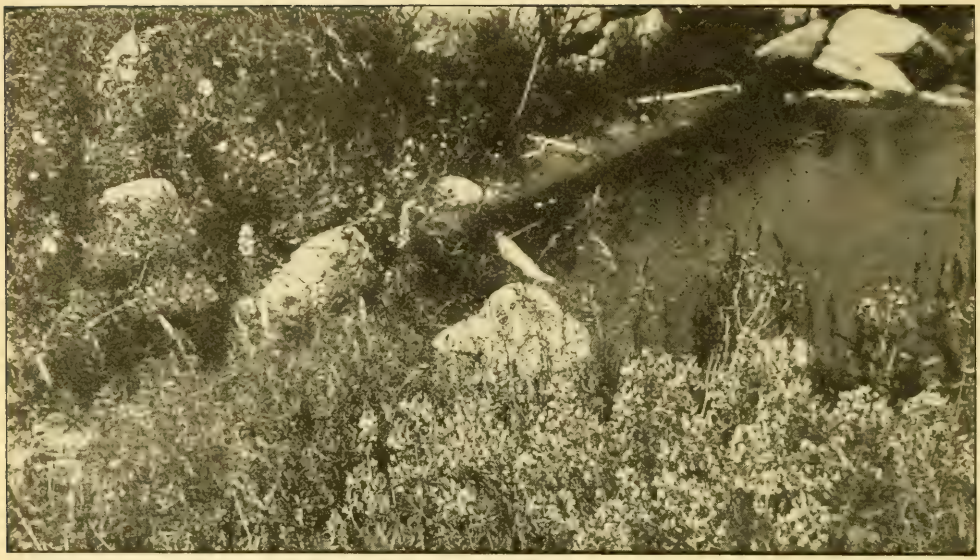
The interesting thing to me was this:



Wild geraniums are well liked by the bees.

Why does Nature allow an apparent miscarriage of her plans? for the petals in this jasmine form a star-shaped tube, which, when it falls, carries away with it also the stamens that adhere closely to the inside of the petals, and so carries the pollinating elements of the blossom. No good could, therefore, possibly result to the blossom from any visit of the bees after the petals were gone. The bees, we might almost say, were mere looters, taking what was left, but paying no toll of fertilization to the plant for the nectar obtained. The blossoms would have been fertilized equally well without the visitations of the bees. Why is it so? Is it some slip in nature, some abortive condition of a principle otherwise effective and efficient, world-wide in application?

Our wonder is increased when we reflect that this shrub is not the only instance of such abortion—if such it be—of a wide principle. The cotton and the partridge pea (sensitive pea, *Cassia chacmicrista*) of northern Florida and southern Georgia are both illustrations of a similar oddity. In these two plants it is not the blossoms that secrete the nectar, but small petiolar glands or leaves at the base of the blossoms. In a recent letter from Mr. John H. Lovell, of Waldoboro, Me., I was interested to note that he also finds some of the workings of nature's rules rather odd. He remarks of this trait in cotton and the par-



Lupins cover the brook bank. The blossoms are purplish red.

tridge pea. "The glands would appear likely to distract the attention of insects away from the flowers." That is, the presence of these nectar-secreting bracts, elsewhere than in the blossoms, would probably lessen the chances of insect-pollination rather than assist in the nuptials of these plants.

Who can fathom altogether the workings of even the simplest rule in nature? Who can explain to us the workings, the cause, and occasion for these apparent slips in the operations of the rule of insect-visitation and plant-fertilization? Are they like the appendix in the human system, or the presence of nipples on all male animals—mere souvenirs of a principle inoperative in special cases?

Truly Tennyson was as much naturalist as poet when he sang:

> Flower in the crannied wall,
> I pluck you out of the crannies;
> Hold you here, root and all, in my hand,
> Little flower, but if I could understand
> What you are, root and all, and all in all,
> I should know what God and man is.

Deland, Fla.

WHITEWOOD

BY W. C. MOLLET.

The whitewood is one of the most majestic and noble-appearing of the native American trees, often reaching a height of 150 and even 200 feet. In the South it is generally called "poplar," although not a true poplar, but related to the magnolia, its specific name being *Liriodendron tulipifera;* hence it is often also called tulip-tree. It is found in most of the South and East, but reaches its perfection in about the latitude of Kentucky and Virginia.

The wood is very useful in a great many ways, as it is easily worked and capable of receiving a fine polish. It is also very strong and durable. On this account the groves of whitewood have been cut down to a considerable extent, so that the trees are not as plentiful as they were some years ago.

It is also a very ornamental tree, as its manner of growth, its leaves, and flowers are very pretty, and it is one of the best and longest-lived shade-trees known.

It is not so hardy as the basswood in the North, and is also somewhat difficult to transplant, like all the magnolia family. The young trees will often bloom in ten years from the seed, although the blossoms are not very plentiful till it reaches the age of 15 or 20 years. It will succeed in any common soil, either moist or dry, and also on the hills as well as in the lower ground.

Whitewood is one of the best if not the very best honey-yielder with which I am

acquainted. The large flowers are of a cream color, with the base of the petals of an orange color, and they stand up straight like those of the tulip. They bloom in May or June according to the weather, sometimes very early, and at other times considerably later. When the blossoms come late, and the weather is fairly dry and warm, the honey-flow is very much heavier than when they bloom early. Under proper weather conditions no honey-plant will much exceed, even if it equals, the tulip tree. One good authority says that each flower will produce a teaspoonful of nectar, which I am pretty sure is not much of an overestimate.

On account of early blooming, and also the erect position of the flowers, the honey-flow is apt to be interrupted by cold spells or rain, which happens at least half the seasons. The tree continues to bloom nearly a month; and so when conditions are just right the yield is surprising, even where the trees are somewhat scarce. The bees often fill one or two supers from this source alone. Where the trees are plentiful there is not much danger of overstocking, as I am pretty sure that 200 hives of bees could not take care of all the honey within their range. Unfortunately, there are very few such locations now, and they are generally in some almost inaccessible place where it is almost impossible to get out or in.

The honey from whitewood is a bright amber color when new, but it becomes darker with age, and also very thick—sometimes almost like molasses. It is always considered to be of a fair quality, and most people who are acquainted with it prefer it to any other. I always can get a good price for it, generally 15 cts. for bulk comb honey, as this is the most common way of getting honey here, and so there is no need of fussing with getting the bees to work in sections. As long as I can sell bulk comb honey at practically my own price I am not very likely to produce honey in sections, as I can get fully a half more in the extracting-frames.

Stonecoal, W. Va.

VALUABLE WINTER BLOOM

BY P. C. CHADWICK.

The loquot is very limited in its distribution. It is found principally in our city gardens, and is grown for its fruit. Nevertheless it is of considerable importance as a pollen and honey plant for the month of December, when little else to encourage a bee is to be found.

The eucalyptus is of vast importance in many sections of our state. There are many species of this tree, one or more of which may be found in bloom at a time, during the entire year. The picture is that of *Eucalyptus globulus* which is, perhaps, the most important of any in the state, due to the fact that it has been planted generally to a greater extent. *Eucalyptus robusta* is the next in importance. Both of these bloom in December, January, and February, and their importance as a winter stimulative agent is well known to our native beekeepers. A flow sufficient to cause the building of new combs is quite common in some localities. The honey is not very desirable, either in color or flavor. There are said to be some thirty varieties of this tree in California.

No. 1 in the picture is a bud just in the act of blooming. The cap, which is almost exactly the shape of an acorn-cup, comes off and the petals spread, making the bloom complete. No. 2 is a seed-pod which has shed its petals. No. 3 is a bloom with half



The loquot encourages the bees when little else is present.

of the petals removed. No. 4 is a flower just coming to full bloom. No. 5 is a bloom at its fullest. The dark spot in No. 5 is where the bees enter for the nectar, the depth of which can be judged from No. 2. I have seen as many as three bees working on a single bloom at the same time. The fuzzy petals interfere with the progress of the bees to some extent, as they are obliged to work their way through to the honey-cup. They get well paid, as a rule, for their work.

Redlands, Cal.



The eucalyptus is of vast importance in California.

A NATIONAL COLLECTION OF HONEY-PLANTS

BY BURTON N. GATES, PH. D.

The Massachusetts Agricultural College, through the courtesy of the Botanical Department, Prof. A. V. Osmun in charge, has kindly consented to serve as a repository for specimens of honey and pollen plants from various parts of the country. The year 1915 seems to be devoted to the study of this subject, especially by the bee-keeping press.

It is, moreover, fundamentally important, and is so recognized by the progressive bee-keepers, for only by a thorough understanding of the flora can the most successful honey-cropping be accomplished. From time to time the flora of a given locality changes. New honey sources appear. Some seasons one honey-plant may predominate; in another season, other plants may predominate. Furthermore, a given plant may yield nectar, as, for instance, alfalfa, in one locality and not in another. The reasons for some of these phenomena are not fully understood.

It is with a view to determine the range of honey-plants and the locations of their highest efficiency that this institution proposes to serve the beekeepers. In so far as possible, too, the institution will assist beekeepers in the determination of unknown honey-plants. Furthermore, specimens received according to the directions given below will be filed in a permanent herbarium of nectar and pollen yielding flora. This collection should become invaluable as a source of reference during years to come.

Beekeepers are, therefore, invited to furnish for this collection, according to the following directions, specimens of their local sources of nectar and pollen.

Plants should be pressed and dried for shipping, as there is always danger that when shipped in fresh condition they will not reach their destination in good condition for preserving and identification.

DIRECTIONS.

1. Plants for pressing should be in full blossoms and should go into the press while fresh.

2. Newspapers may be used as driers, if care is taken to change them each day until the plants are perfectly dry, otherwise moldy specimens will be the result. Place the plant between several thicknesses of paper. If a plant is taller than the length of the paper it may be folded over to fit.

3. Use the margins of the newspapers on which to write necessary data, including name of plant—common or scientific—place and date of collection, name and address of collector, and a note of the value of the plant in your locality for honey or pollen.

(Extended remarks should be sent in a separate letter; but be sure to refer to your specimens sent under separate cover.) It is desirable that several specimens of each kind of plant be prepared.

4. Press papers may be laid on the floor with a board of the proper size on top. On the board place a weight (or stones) of about thirty-five pounds. Too much weight is not desirable.

5. For shipping, place the folder containing plant and data between pieces of binder's board or heavy cardboard; wrap and tie securely, and label "dried plants," with your name and address as sender.

6. Address the package to:

Prof. A. Vincent Osmun,
Clark Hall,
Massachusetts Agricultural College,
Amherst, Mass.

THREE SOUTH-CENTRAL HONEY-TREES

BY J. M. BUCHANAN.

Virgilia lutea, yellow-wood—a tree attaining a height of 75 feet, and a diameter of more than 2 feet, occurring on the highlands of the south-central states, and often planted for ornament. Flowers are snow-white, in large panicles 12 inches long; blooms in April and May. The honey has a strong, distinctive flavor, and, when mixed with locust, which it usually is, it forms a delightful blend.



Virgilia lutea, Yellow wood. Photo by J. M. Buchanan, Franklin, Tenn.



Robinia pseudacacia, Locust. Photo by J. M. Buchanan.

Liriodendron tulipifera, yellow poplar. Found throughout the south-central states. This is one of our most valuable timber trees, sometimes standing 150 feet high, and 10 feet in diameter. Like the linden, it is becoming scarce in many sections. It is a heavy yielder of nectar, producing a fine-flavored, light-amber honey. The blossoms open in May; are large, tulip-shaped, yellow, with irregular red spots on the inner faces of the petals.

Robinia pseudacacia, black or yellow

locust. A rugged, homely tree, but a wonderful honey-plant. The creamy-white blossoms open in April, and fill the air with their sweet perfume, inviting the bees to come and feast. The honey is water-white, heavy in body, mild-flavored, slow to granulate. The yield is often heavy, depending somewhat on weather conditions. I have known a colony on the scales to store 15 pounds in a day from locust alone. The locust occurs in the central and southern states; and the wood, on account of its lasting quality, is valuable for posts. It is also a good soil-renovator, as it is a member of the legume family.



Liriodendron tulipifera, Poplar. Photo by J. M. Buchanan.

Franklin, Tenn.

THE EUCALYPTUS OF CALIFORNIA

BY LESLIE BURR.

The tourist on his arrival in California probably obtains more misinformation on the subject of eucalyptus than on any other. The object of this article is to set forth the general characteristics and habits of the eucalyptus.

The tree is a hard-wood evergreen. It belongs to the order *Myrtaceae,* and is a native of Australia. The tree was discovered in 1788 and was introduced into California in 1856, the first tree being planted near Santa Barbara. The name "eucalyptus" was suggested by the lid or cap-like covering that covers the immature blossom, the word being from the Greek, and meaning "well hidden." There are about 150 species, more or less, of the eucalyptus, the number not being definitely settled.

The tree that predominates in California is the *Eucalyptus globulus,* commonly called "blue gum." In years past a possible ninety per cent of all gum-trees planted were *Eucalyptus globulus.* This tree has the distinction of being the fastest-growing tree in the world. This does not mean that blue gum will always grow more rapidly than any other gum-trees, for in many localities other species have outgrown it in particular instances; but, taken as a whole, it is the fastest-growing tree. In 25 years it attains the size of that of an oak-tree whose rings show it to be 200 or 300 years of age. The wood is the equal of oak, and can probably be used for a greater variety of purposes. It has another added value in that, when it is cut down, the tree sprouts freely, sending shoots 75 to 100 feet high in from six to eight years.

All the species of eucalyptus are propagated from the seed only. The seeds are very small, the average size being about .04 of an inch. The number of seed produced by a tree is enormous; but, however, a very small percentage of the seeds are fertile, and for this reason there is a widespread opinion that seeds from trees growing in California will not germinate.

The blue gum and a number of other species are bark-shedders—that is, they continually shed their bark. The trees are also classed somewhat by reason of the nature of the bark, as iron-bark gums, stringy-bark gums, and white gums.

The localities where eucalyptus will grow here in the United States are limited. They do best where the summer temperature ranges from 80 to 100 degrees; and where in winter the temperature seldom goes be-

low freezing. This restricts the eucalypti to the warmer valleys along the Mexican border, and to California. Practically all of the varieties seem to do best in a semi-arid country. They grow without irrigation in California where there is but a few inches of rainfall. Some of the species will stand more frost than others, the amount of frost a tree will stand depending somewhat on the condition of the tree. If the weather has been cool for some time they will stand temperatures of 25 degrees to 20 degrees Fahr. without injury. Florida is a poor place for the eucalyptus by reason of the sudden changes in the temperature. In Government Bulletin 35, Bureau of Forestry,



a, gum; b, red gum; c, blue gum; d, lemon gum; e, brown gum.

Prof. McClatchie quotes as follows from Col. G. H. Morton, of Eustis, Florida: "All eucalypti do well, but are killed to the ground when severe blizzards come and mercury falls below 20 degrees Fahr. The trouble with the climate is, we have warm weather nearly all the time in winter, with an occasional cold wave."

There are very few of the species that have common names, and quite often the same name is applied to several species. According to Prof. McClatchie, twelve different species of the eucalyptus are, by the general public, called blue gum; seven are called flooded gum; eight are called iron-bark; nine are called red gum; eleven different species are known as stringy-bark, and the name "white gum" is applied to thirteen different species. By reason of this dearth of common names the botanical names have to be used, and here it might be well to say that the botanical names refer to some prominent feature of the tree. For example, *Eucalyptus globulus* is so called from the globular seed-case. *Eucalyptus longifolia* is so called by reason of the long leaves. *Eucalyptus mellidora* means "honey-scented," from the fragrance of the blossoms. *Eucalyptus robusta* is so called by reason of the robust appearance of the tree. *Eucalyptus siderophlia* means "iron-bark," and is so called by reason of the nature of the bark. *Eucalyptus diversicolor* is named from the varied color of the foliage, and the *Eucalyptus cornuta* means "horned" because of the horn-like cups over the immature blossoms.

There is considerable difficulty in distinguishing the different species of eucalyptus. In fact, it is admitted by the best authorities that it is practically impossible to distinguish them in many cases until the trees bloom and the seed-pods mature.

To obtain an idea of the vastness of the study of eucalyptus we have but to consider the fact that Baron von Muller spent considerable of his time for a period of fifty years in the study of eucalypti. He described about 100 different species, and recognized 30 more, but died before he completed his work.

The foliage of the eucalyptus varies considerably. In some the leaves are bluish, others grayish-green, and still others very dark. Some of the leaves hang edgewise to the sky, and some flat. In some species the leaves on the young shoots are round or flat and opposite; but after the trees obtain a few years of age the leaves are never opposite. The prevailing shape of the leaves is lance-shaped and somewhat curved. The leaves of the different species vary considerably in length, being from three to fourteen inches long.

The blossoms of the eucalyptus are mostly white or greenish-white, there being exceptions however. Some trees have a brilliant red or pink blosson, the red iron-bark being one of the trees in the latter class. Eucalyptus can be found in blossom at all sea-



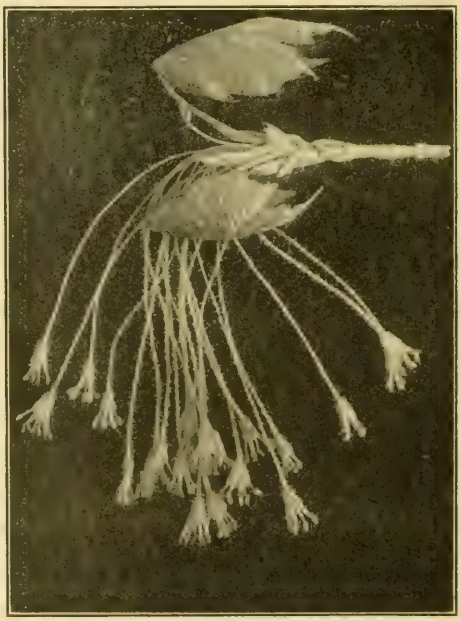
Glaucous or pussy willow. Staminate and pistillate and catkins. *Salix discolor* Muhl. Photographed by John H. Lovell, Waldoboro, Me.



River-bank willow, *S. longifolia* Muhl. Staminate and pistillate catkins. Very common, following the pussy willow; valuable for both pollen and nectar. Photographed by John H. Lovell.



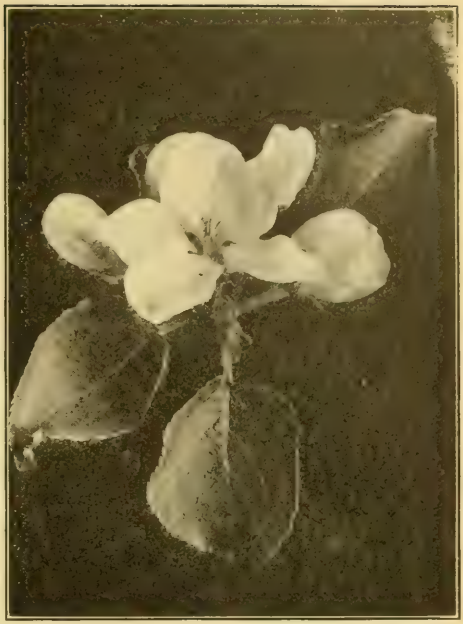
White willow, *Salix alba* L. *Staminate* catkins. Common trees visited by bees in great numbers. Photographed by John H. Lovell.



Rock or sugar maple, *Acer saccharum* Marsh. Photographed by John H. Lovell.



Dandelion. *Taraxicum officinale* Weber. Photographed by John H. Lovell.



Apple, variety Hurlbut, *Pyrus malus* L. Photographed by John H. Lovell.



Red clover, *Trifolium pratense* L. Common, but not a reliable honey-plant. Corolla tubes too deep for most honeybees. Photographed by John H. Lovell.



Tulip-tree or whitewood *Liriodendron tulipifera*. Leaves are dark green and glossy, flowers greenish yellow, orange within, solitary and erect. Photographed by C. V. Rice, Lawrence, Mich.



Orange blossoms and leaves. Photographed by Flora McIntyre, Ventura, Cal.

sons of the year, while others have several periods of bloom. The blossoms, as a rule, grow in clusters or umbels, very seldom being single. The blossom consists of stamens, these stamens in the different species varying from ½ to 1½ in. in length. There is always the cap over the immature blossoms, this cap being part of the calyx, and always coming off in one piece resembling a lid or cup.

As a honey-producer, a number of the species are profuse yielders. In examining the various authorities on the subject there seems to be no species but that some one claims it yields honey. So it seems a safe proposition to state that all of the different species of eucalyptus at some time or other, in some localities, yield honey. There is considerable variation in the quality of the honey. Some is strong and rank, and of inferior quality; some of the nectar has a distinctive odor or aroma of the eucalyptus-tree, and is not disagreeable. In fact, some people after having eaten eucalyptus honey prefer it to good white honey from other sources.

The practical value of the eucalyptus to the beekeeper is that it furnishes pasturage for the bees when there is nothing else, the bees here on the coast this past winter having stored surplus from eucalyptus during December, January, and February. The value of the different species as honey-producers is as yet far from being exactly determined, even though the tree has been recognized of value to beekeepers for a number of years. Prof. Kinney, in his work which was published some twenty years ago, states that his attention was first called to the value of the eucalyptus to beemen by Prof. A. J. Cook, Claremont. It is safe to say, however, that within the next ten years eucalyptus culture will make more progress than has been recorded in the past sixty years. It is the only tree that can be grown and show a profit per acre with other ranch crops. Each year, for the past few years, large tracts of land have been planted to eucalyptus; and in a few years, perhaps, eucalyptus honey will be filling just such a place in the honey market of the West as buckwheat honey fills in the East.

San Diego, Cal.

SOME NEW ZEALAND HONEY-PLANTS

BY W. B. BRAY.

1. *Fuschia.*—This is an ornamental garden variety. The bees work the red flowers vigorously. In New Zealand we have a native variety similar to this, only the flower is green. It is a great honey and pollen yielder, and flowers for over three months, lasting well into clover bloom. It is a standby for spring feed, and is not affected by rain, the flowers hanging downward. The pollen is blue on all varieties.



Rain cannot get to the pollen on the fuschia.



Nectar can be shaken out of redhot poker in handfuls.



Bees always work the passion flower.



The Scotch thistle grows everywhere.



In New Zealand the catsear is sometimes called the dandelion.

2. *Passion Flower.*—This is a vine which in warmer climes produces the passion fruit. The bees always work it. It has a very long blooming period.

3. *Redhot Poker.*—A garden plant here; but in its native habitat the bees should do well on it. The nectar can be shaken out in handfuls. The bees work on it from early morn till late in the afternoon. It blooms in the early autumn here.

4. *Catsear.*—This is commonly called capeweed here, and even dandelion. Is it the same as is called dandelion in the states? Dandelion has a similar flower, but only one flower to a stalk, which is hollow. The leaf is smooth. Catsear has a rough leaf, and the flowers come on branching stems which are solid. Dandelion blooms in the spring, but catsear starts soon after clover and continues when clover is finished. The flowers close up after midday. It is a strong grower, and often the pastures are a sheet of yellow in the morning. It is a useful honey-plant. The honey is of a rich golden color, and the flavor mild and good.

5. The common Scotch thistle is a weed which grows everywhere. It begins flowering as clover is going off, and provides a quantity of water-white honey. The bees work very hard on it all day, and it is no uncommon sight to see several bees at once on a flower.

Wainin, N. Z.

THE GLORIOUS GUM-TREE; A WONDERFUL HONEY-YIELDING BOTANICAL ORDER

BY T. RAYMENT

An American architect came to Australia to design a capital worthy of the commonwealth. He, like all visitors to the Australian shores, was so deeply impressed with the unique beauty of the trees peculiar to the island continent that he enthusiastically described them as "glorious gum-trees." This note awakened Australians to a better appreciation of the indigenous flora. "The glorious gum-tree" is ubiquitous. Snow-gums (*E. alpina*), twisted and bent, battle with the elements on the snow-clad mountain peaks. The scorching winds of the arid interior do not debar the coolibah (*E. microtheca*) from flourishing. Color harmonies in deep cool forest gullies are provided by the manna-gums (*E. viminalis*) and cider-gums (*E. gunnii*). Other species clothe the long coast line, notably the swamp mahogany (*E. robusta*). Surely a wonderful distribution!

But the term gum-tree is a misnomer. The various trees belong to the species *Eucalyptus* of the order *Myrtacea*. E. R. Root, editor of GLEANINGS, once said that it was almost impossible to specify botanically the goldenrods (*Solidago*) of America, and this applies to the *Eucalypts*. They furnish an interminable study in plant gradation, one species merging into another with baffling complexity; *but they all yield honey.* The bark permits a popular classification because it is most apparent; but no system is entirely satisfactory. Here, then, are the groups differentiated by the bark:

Gum-trees.—Bark thick, smooth, and soft. Typical specimens, blue gum (*E. globulus*), and forest red-gum (*E. terticornis*).

Box-trees (1).—Bark solid, rough, and short-fibered; confined to the bole with upper branches bare. Typical specimens, yel-

low-box (*E. melliodora*), and gray-box (*E. hemiphloia*).

Box-trees (2).— Short-fibered and rough, persisting to the topmost. Typical specimens, apple-box (*E. staartiana*), and red box (*E. polyanthemos.*)

Stringy - bark.— Bark thick, soft, and long-fibered, not unlike cocoanut fiber, completely covering trunk and branches. Typical specimens, messmate (*E. oblique*) and Gippsland stringy-bark (*E. eugenioides*).

Iron-bark.— Bark hard, brittle, dark, with deep furrows. Typical specimens, red iron-bark (*E. sideroxylon.*)

There are hundreds of species, some with a habitat extending over the five states, so that every week produces a honey-crop in some portion of Australia. The color of the nectar varies from water-white (*e. g.*; box) to a dark vandyke brown almost as deep as the color of buckwheat honey (*e. g.*, stringy-bark). Each little district has its special favorite species for pride of place as a honey-producer. You cannot imagine the honey resources of the province of Gippsland in Victoria. From where this is written the eye may travel over the tumbling contours of sixty miles of mountains clothed with unbroken virgin forest containing many species of eucalyptus. In this mighty sylvan expanse, pulsating with the majesty of God, and permeated with the wonderful odor of growing trees, there are but two bee farmers. Adventurers? Yes, and one of whom is your humble servant.



The gum-tree grows everywhere throughout Australia.

Briagolong, Victoria, Aust.

[This is the first of a series of three articles by Mr. Rayment on certain important pollen and nectar yielding plants of Australia. The second article will appear in the next number. —ED.]

THE BITTER HONEY OF THE SNEEZEWEED

BY H. A. MOODY

Last September I wrote GLEANINGS that some of my supers were full of beautiful bright-yellow honey, too bitter for eating. Inspired by that fraternal spirit characteristic of all true bee-lovers, Mr. Herman Meuly of Corpus Christi, Texas, wrote me that he once had some bitter honey, gathered from a tree called "la Retama," which he re-

placed upon the hives, and in 30 days the bitterness was all gone. I am much obliged to him for the suggestion; but my bitter honey came from a different source, *Helenium tenuifolium,* the sneezeweed or bitterweed of the South, a poisonous perennial which can be killed only by mowing it for two years so often that it cannot go to seed. It seldom kills cattle, but it makes the milk too bitter for use. It is a nuisance, for even when there is other grazing some cattle will eat it. I might say that, though it resembles dog-fennel (*Anthemis cotula*), it is of a different family.

Well, I put about a dozen bitter supers on the hives, next to the brood-chamber, though some warned me it would kill the bees. I have just extracted those supers. All the yellow honey was gone, and they were filled with young bees and rich amber honey. Two supers were rejected, as they still had a slight bitter flavor. So there, you see, are two questions answered. It will not kill bees, for I lost but one colony in the eight months of my absence; and you can never be sure of getting rid of the bitter taste. I have never known it to be gathered when there was any other nectar, and if replaced on the hives all other honey should be taken away, so that they will be obliged to use it.

Florence, Ala.

THE COMMON LOCUST

BY J. H. BOWMAN

The locust yields much honey usually at a time when it is greatly needed by the bees. Ordinarily it blooms about the middle of April in Kentucky, although it sometimes blossoms late in March. This makes it of much value in building up colonies in the spring. Sometimes it yields a nice surplus.

The honey made from the locust is water-white and of very fine flavor. Owing to the value of locust timber for fencing purposes it is being cut down very rapidly, and is decreasing in value as a honey-yielder. On the other hand the locust grows rapidly, and yields some nectar while it is very young—a partial compensation.

Mortonsville, Ky.



The fragrance and nectar of locust blossoms attract large numbers of bees.



An aged locust-tree in heavy bloom.



Bees on plum blossoms promise perfect fruit. Photographed by A. G. Lucier, Powell, Wyo.



Gathering nectar from plum blossoms. The bee can be plainly seen near the center of the picture: Photographed by A. G. Lucier, Powell, Wyo.

THE NEED OF EXACTNESS IN THE DISCUSSION OF HONEY-PLANTS

BY C. F. BENDER

All beekeepers seem to agree that buckwheat produces dark honey; that basswood and the clovers produce light honey. Outside of this simple creed it seems very easy to get up a discussion as to the color and quality of honey produced by any particular plant.

It is not always easy to say *where* the bees are getting their honey. I have had honey stored in supers when I could not even guess what plant had produced it, and that in a level country where I was familiar with every acre of ground, and rather well posted as to the honey-producing flowers and their season of bloom. But that is not the rule with me. Usually I know where the honey is coming from, if there is enough to make a show in supers, and sometimes I can be sure that practically all is from one source.

We often disagree on such matters because we are talking about different things. A brother in eastern Canada and one in Illinois have a talk about aster honey, and one says it is of light color and good flavor, and the other says it is dark and strong. Neither describes the plant, tells the Latin name, nor even the color of the flower. Neither stops to consider that there are more than forty species of the genus *Aster* in the United States, and that of aster-like flowers, easily mistaken for them, there are many hundreds. It is easier for me to believe that the honey from related plants may differ in quality than to believe that the quality varies in the same plant in different localities.

Before I had ever made any careful study of plants I was skeptical about honey ever being produced from goldenrod, as I never could find a bee on it; but at Medina, Ohio, I found two kinds of goldenrod growing side by side, blooming at the same time—one a honey-producer and the other not, and both were different from our Illinois species. We have two species of Spanish needle here—one with gorgeous yellow flowers that the bees never visit; the other a modest flower that sometimes gives some surplus. In southern Kentucky I found bees on another plant of the same genus, quite dif-

ferent in appearance. People living there called it Spanish needle, and seemed surprised to hear that Spanish-needle honey in Illinois was produced from a different plant.

In speaking of heartsease I think beemen usually mean a plant of the knotweed or smartweed family. Yet Webster's dictionary says it means a violet or pansy. Even Dr. Miller, that careful teacher of bee lore, speaks of heartsease without other definition (p. 123, Fifty Years Among the Bees); but he gives a cut of the plant in another place which shows it to be a knotweed (*Polygonum*). It seems to be different from the honey-yielding species here, which is *P. Pennsylvanica.* We have five species of polygonum growing in our township, four of them quite common. Only one of them is ever visited by bees. It begins to bloom a little in July, but does not yield honey until cooler nights come on, the flow lasting from August 20 to October. I often get a large crop from it when nothing else is yielding. The color is very light and the flavor delicious. Sometimes it is mixed with honey from our Spanish needle (*Bidens frondosa*) which injures both color and flavor.

Boneset honey is generally described as dark and rank, but our variety (*Eupatorium scrotinum*) seems to produce a very good quality of honey. Wood's Botany gives the name "boneset" to *E. perfoliatum.*

There are even two kinds of dandelion to be found. The species at Medina is evidently a cultivated plant run wild, and is quite different from the wild dandelion of my locality.

I could give many other instances of the same name being applied to widely different plants in different places; but it would only be adding evidence to prove what is already proven—that in speaking of honey-plants we ought to give the Latin name if possible. A vast majority of plants have no English name; and if there is one it is often applied to other plants.

It is true that the busy beeman has little time for the study of botany; but it is easy to identify the common flowers with the aid of a few books. In cases of doubt the state experiment stations or the Department of Agriculture at Washington will help us out, if the plant is sent with flowers, leaves, and seed-vessels.

Newman, Ill.

ANOTHER FLORIDA BEE PASTURE

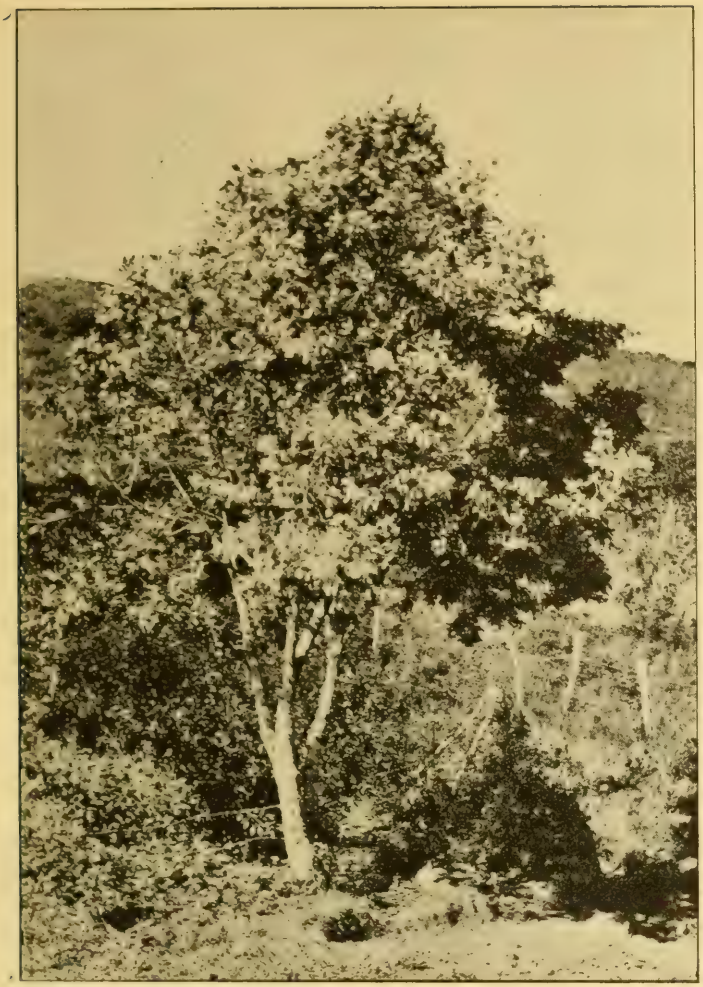
BY F. M. BALDWIN

Much of the testimony taken in courts is worthless because the witness has not learned how to see things. The man with real ability to observe is rare. Last fall I watched for the coming of the first bloom on the goldenrod and rejoiced when by the roadside, as I was at work surveying, I caught the first glimpse of a bee on it. To my rodman, who is an intelligent young man, I said, "See there!" as I pointed at the bee. He looked all around and said, "See where?" I was almost touching the bee, and I kept on saying, "See there!" It would have been easy to say, "Don't you see that bee?" but I wanted to test his powers of observation, and so I kept on saying, "See there!" As he was not thinking bees I was at last forced to say, "See that bee on that flower."

Mr. C. H. Clute has thought bees ever since, as a half-grown boy, he earned his first quarter by a day's work watching the issuing of swarms in Wisconsin. The bee-keeper was busy with his farming, and he hired the boy to report when a swarm had issued. He has acquired the faculty of observing all things that concern these wonderful insects.

Recently he was in the country along the St. John's River, Florida. He reports a flora that actually seems too good to exist.

Hearing of some bees for sale near Sanford he went to see and buy, if he found matters favorable. Of course, as a careful man he looked closely into the flora of the region before he bought. Having satisfied himself on this point he bought three yards with nearly 200 colonies. Sanford is at the head of steamer navigation on the far-famed St. John's. He made the trip by boat down it to Jacksonville, closely observing the vegetation on its banks. He brings back an interesting list of what he found growing there. Below is a copy. After he gave it to me I went over it with Mr. J. J. Wilder, of Cordele, Ga. Wilder has the "Florida habit," and winters with us at Bradentown. He agreed with me that the list was worth publication, and that we could be sure it was carefully and correctly compiled. According to our ideas there are at least thirteen first-class nectar-secreting plants in the list. These are put first in the list and marked with a star. When I told Mr. Clute about what we had



GUAMA AND GUAVA AS HONEY-PLANTS.

The illustration shows a stalk of the guama in full bloom. This tree has had three periods of bloom this year. However, it is not the heaviest-yielding tree, for we have the guava, which is more abundant in nectar, and whose flora lasts several months. Moreover, the honey is equal to that from the guama or even better. Both of these trees are used for shade in coffee plantations.

Yauco, Porto Rico. S. COLOM.

picked out as first class in this list he thought we had skipped several that belonged in the first rank. He would include maple, yellow jessamine, sweet fennel, touch-me-not, all-root, buck-apple, live-oak, Mexican clover, sumac, and titi. If you have no personal knowledge of Florida, you may think he has included several very poor honey-plants. But remember that what does well with you may be an absolute failure here and *vice versa*. Back in Indiana it was too cool for maple to give any nectar when it bloomed. Down here it starts the activity in the hive and lasts more than a week in the spring. It is not strange that Mr. Clute would put it in the first rank. But I hardly felt that it was a "ringer," and concluded that I would stay with the classification that Mr. Wilder and I had made. Thirteen may in some cases be an unlucky number; but in this one it means success to the beekeeper who is fortunate enough to be located in such a neighborhood. It gives a succession of bloom the year round. What more can one ask, especially when it includes such fine producers as orange, saw palmetto, Spanish needle, tupelo, and the myrtles?

Mr. Clute put up his surplus in Mason quart jars as chunk honey, and brought home with him some of it as samples. The one that most interested me, because it was new to me, its color so peculiar, and its flavor so fine, was mint honey. From one of the yards southeast of Sanford he took 1800 pounds of this kind. Dividing 1800 by 30, the number of colonies in the yard, gives 60 as the average. For a yard where there had been lack of room owing to the owner's being engaged in what he thought more profitable business, sixty pounds is a good average. But friend Clute expects to more than double it this season, the prospects for a heavy flow being the best ever known at this time.

He has picked a location half a mile from the present one, where this yard should gather from smartweed as well as from mint. This last comes in and goes out before the other begins, and this other yields for months, beginning in July and staying with us until late in November. There are acres and acres of both mint and smartweed. Before smartweed fails, wild sun-

flower, goldenrod, and myrtle come in, and there is the greatest profusion of them. Does not this look like a beekeepers' paradise?

There are fifty plants in this list; but they ought to be separated into the different varieties, in a number of cases, to give one a correct idea of what a multitude of sources of nectar this favored region has. Surplus was already being gathered the first of February, 1915. Why, drones flying on the St. John's, and we who are miles south of it had no sign yet of drones in our hives! The orange and the grapefruit were starting to fill the air with their delicious fragrance. I saw the first bloom Jan. 31. Our bees must hurry if they get in good condition for that bloom. Saw palmetto usually comes in about April 1. I was told that already there were blossoms on some of those plants.

HONEY-PLANTS FOUND ALONG THE ST. JOHN'S RIVER, FLORIDA.

*Orange,
*Grapefruit,
*Gallberry,
*Saw palmetto,
*Smartweed,
*Mint,
*Partridge pea,
*Goldenrod, 4 varieties,
*Wild sunflower,
*Spanish needle (blooms almost all the year);
*Tupelo,
*Swamp laurel,
*Myrtle (several kinds, two of which yield heavily in spring and fall.
Maple,
Willow,
Rattan,
Yellow jessamine,
Cherry,
Aster, several kinds,
Swamp dogwood,
Locust,
Yellow poplar,
Red shank,
Sweet fennel,
Basswood,
Pennyroyal,
Touch-me-not,
All-root,
Huckleberry,
Buck-apple,
Yellow daisy,
Persimmon,
Prickly ash,
Live oak,
Water oak,
Bay,
Woodbine,
Chinkapin,
Hickory,
Black haw,
Mexican clover,
Mexican pinkvine,
Watermelon,
Cucumber,
Water hyacinth,
Sheep burr,
Sumac,
Titi,
Grape, wild (good honey-plant in Florida).

Bradentown, Fla.

IMPROVING ON NATURE

BY G. DE C. CURTIS

I hived a swarm that had a virgin queen April 16; and when I examined them about a week later the queen appeared to have been fertilized, but was not laying. I noticed at the tip of her abdomen a small grayish-white deposit that looked like a bit of dried mucilage. Several days later (April 19) I looked in again, and there was still no brood. While I held the frame in my hand the queen went through the motions of trying to lay an egg. The bees stood around her expectantly; and when she moved on without depositing anything they followed her in a disappointed sort of way.

I decided on an operation. Holding her by the wings I pulled the adhering matter away with a pair of tweezers. It was stuck so firmly that her abdomen stretched out with the strain until I feared something would break; but when I looked into the hive again next day she seemed to be in good condition, and had laid a nice patch of eggs. Could it have been that the organ of the drone had not been removed, for some reason, until it had become so dried up that removal was impossible?

On the same day I saw a virgin hatch tail foremost from a cell in a queen-cell protector. I had examined the cell two days before, fearing that it had become chilled. I had made a tiny hole in the end of it, and, looking in, I saw the queen's black eyes shining, and a slight movement, so I put it back in the hive. Next day the bees had completely sealed over the hole I had made. When I looked, on the day after that, the virgin was very much alive and trying to get out, but the hole seemed to be too small—perhaps the bees had sealed up the end too effectively. A number of workers seemed to be very much interested in the case—perhaps they were feeding her.

By the time I had carefully brushed them away the virgin had turned around in her cell, so that the tip of her abdomen projected from the hole. She might have been eating the royal jelly at the base of the cell. I took the cell out of the protector, and then with my queen-clipping scissors I carefully enlarged the hole in the cell; and when I had done so she backed out. The activity she showed as soon as released was like that of a virgin which has been held back in her cell by the bees beyond her hatching-time when bad weather or some other cause had prevented her swarming.

Foster, Cal.

[It may be that the queen did turn around while in the cell; but is it not more likely that she had hatched and then had gone into the cell again, head first, for the royal jelly and the "hinged door" (the cap of the cell) had closed after her? A number of such instances have been reported. The bees, seemingly unaware of the true state of affairs, wax the cell shut again, thereby making a prisoner of the queen.

Is it possible for a virgin queen to turn around, end for end, while in the cell?—Ed.]

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Don't think that you are the only one that has the blues on a cold wet day. Every bee in the yard feels the same way.

A Sting-proof Dress.

I must tell the women who have "bees in their bonnets," and yet are actually as afraid of a bee as they are of a mouse, about a suit so bee-proof in its construction that they may associate with bees to their hearts' content without a sting.

Make a garment of gingham or any light-weight material, just like a child's sleeping-garment (except a size too large). Don't shape the neck or shoulders, but extend on straight like a sack, several inches above the head; hem the top and run a good elastic in the hem. Cut out a place for the face and replace with fly-screen wire. Hem sleeves and bottom of legs, and run elastic in the hems so it will fit tight around the wrists and ankles. Take fencing wire; make hoops, and sew a few inside the garment, one at the neck to keep the garment away from the body so the bees cannot sting through.

You will not have to wear many clothes under this garment, as working with bees is such hot work. You get into the garment at the top, then put on a hat, and let the elastic in the top of the garment fit tight around the crown of the hat. Then there is not a crack or crevice where a bee can get in.

Of course, after you become acquainted with bees you will find the work very fascinating, and will discard all extra garments or wraps of any kind except occasionally a veil. But the garment described is fine for getting acquainted with bees.

CILA SEVER.

Pollen Dust on the Backs of Bees—How Did It Get There?

I have occasionally seen a honeybee with pollen on the back of the thorax. Recently, in examining a small colony, I was surprised to find all the pollen brought in exactly in that manner. I watched the bees coming in for a long time, and saw only one bee that had even a suspicion of pollen on the legs. The bees that were bringing in pollen had masses on their backs, some of them quite large. I am wondering if you had a similar report, and I also am wondering how the bees pack the pollen on the back. I chloroformed a few, and am sending them to you in a box by to-day's mail. In chloroforming them I noticed it took out the color of the pollen, which was a pronounced yellow, and also dissolved some of it, or at least flattened the masses on the backs.

I fancy that somebody may pop up and inform me that bees, in squeezing into the flowers, rub off a little on their backs. I have occasionally seen that powdery form, but these were evidently deliberately made pollen masses equivalent to those usually carried on the legs. Can anybody explain how the bees pack pollen in that position?

EDWARD F. BIGELOW.

Arcadia, South Beach, Conn.

[It is quite a common occurrence to find pollen on the backs of honeybees at certain seasons of the year. It is evident that the bees do not take the time to brush it off while in the field, but allow it to remain there, and then the dust is taken off after they get back to the hive. Sometimes these little patches of pollen are very conspicuous on the backs of the bees.

Your last paragraph explains how the pollen in most cases gets there. If you examine some of the flowers you will find that the pollen masses are arranged in just such a way that it will daub up the backs of the bees. The bees are evidently after the honey, and, pushing into the flowers, they are compelled to brush against the pollen masses.

Referring to the samples of bees you have sent it looks as if they packed the pollen on their own backs.—ED.]

Do Drone Larvae in Queen-cells Ever Mature?

A few days ago I examined a hive and found the usual signs of an infertile queen. On one frame the bees had built seven queen-cells on drone comb, each one of which contained an unsealed drone larva. As far as my observation goes, drone larvæ in queen-cells die soon after being capped over. I shall be glad if you can tell me if there is any recorded instance of drone larvæ under such conditions having reached maturity. I am told by an old hand at the craft that he actually witnessed this on one occasion, the result being the most extraordinary-looking bees he had ever seen. Unfortunately he did not preserve them.

J. B. SHEPPARD.
Apiary Inspector.

Nelson, B. C., June 26.

[There have been instances recorded where drone larvæ in a queen-cell reached maturity; but usually the highly concentrated food seems to be too much for the poor beast, and he dies. In this connection, brood from a laying worker or drone-laying queen in ordinary worker cells will often be neglected. It will die about the time it caps over, smells horribly, and gives one the impression that it is either European or American foul brood. Such brood does not *always* die, but it frequently does. The cause

of death is neglect or starvation. It is a case of what we call "neglected brood." The bees evidently know that this brood is good for nothing, become discouraged, lie down on the job with the result that there may be a stinking mess in a short time.—Ed].

Importance of Italian Blood in the Cure of European Foul Brood.

Mr Root:—Replying to yours in reference to editorial on page 480, I may say that the instructions for the cure of European foul brood given in the Ontario Bulletin, 213, on "Bee Diseases," may be outlined as follows:

First.—The same treatment already described for American foul brood is effectual if applied to the whole apiary at once, but the cure is permanent only when pure-bred Italian queens are introduced to all black or hybrid stock.

Second:—If the colony is strong, and only then, another treatment may be employed. Remove the queen, then in ten days introduce a vigorous young Italian queen, and by the time she gets well established the disease will be cleaned up. If the disease returns in an Italian colony to such an extent that, say, half the brood is dead, removing the queen for five days before introducing a new one works well, as it gives the bees a chance to clean up the combs before the new queen has a chance to lay. If more than half the brood is dead, the colony should be treated by the McEvoy method.

The experience of some of our most careful men is that, if a beekeeper has his apiary Italianized before the disease reaches him, and if he is looking into his brood-chambers every week during the season, he need never destroy a single comb. The great trouble is that the vast majority of beekeepers, even the more extensive ones, are like the writer of the letter from which I am taking the following extract:

"*Dear Sir*:—I am really afraid that my bees are affected with that dread disease European foul brood. The first I noticed was about ten days ago. In looking them over I noticed two or three colonies that did not look right. Colonies that were healthy then are affected now. If you could send me some good man who could tell me if I really had the disease, so that I could start to Italianize at once, you would greatly oblige. I have about 250 colonies, the majority hybrids, about 25 pure."

The point that I wish to make is that this man has been reading our bulletins regularly, in which we have sent the most vigorously worded warnings against danger of continuing the use of black bees. He has been told that European foul brood was in his vicinity. In spite of that fact he is not willing even yet, when he feels quite sure the disease is in his apiary, to order queens and Italianize his apiary until we go to the expense of sending a man there to show him and tell him what he already knows. On the other hand, we have successful extensive beekeepers who have been treating a few cases each year for the last three years, and have never melted a single comb for the purpose of curing European foul brood. I trust that this will also answer Dr. Miller's question in your July 1st issue.

Guelph, Can., July 8, 1915. Morley Pettit.

[Quite in line with this is a letter written to our State Inspector N. E. Shaw at Columbus, by W. C. Eastman.]

Mr. N. E. Shaw:—Replying to your inquiry regarding European foul brood that appeared in my yard last season I am pleased to report that I have the yard almost entirely cleaned up.

A year ago I had over 100 colonies of bees, mostly blacks, a large percentage of which showed more or less European foul brood, some of them so bad that I could not save them.

Acting on the advice of those having had experience I decided to try requeening with best Italian stock as a cure; and as I was determined to do or die I ordered queens for every one not containing a pure Italian queen, and succeeded in introducing nearly all of them. The new queens were introduced as soon as the old one was removed, and the cure seemed to begin at once, as the Italian brood seemed to be almost immune.

All combs were saved and used as if no disease existed and more trouble was expected; but this spring only three colonies showed the disease, and two of them were blacks that did not accept Italian queens. The other is an Italian colony that probably had some very bad combs. The blacks were requeened; and one of them being left queenless for about two weeks showed very little disease, and the others are fast coming my way.

On combs that were fairly rotten last year I have now the strongest colonies I ever owned, many of them covering 30 L. frames with two supers added. Perhaps not all Italian bees are as immune as these.

No colonies were lost after re-queening, and over 90 queens were accepted.

Rock Creek, O., June 21. W. C. Eastman.

Bees on Dogwood.

In the past fortnight, when clover-time has been an actual honey-famine because clover had no nectar and locusts had no bloom, I have seen my bees working for honey on the cornel, otherwise called dogwood. There are different species of *Cornus*, blossoming at somewhat different dates, several of them fairly common, both wild (most of them near water), and in ornamental shrubbery (where they seem to thrive, water or no water). I cannot see that they have much nectar or any place in the flower where they could put it; but they seem to be some resource in a time of stress like this. These true dogwoods are no more relation to the "poison dogwood" than a horse-chestnut is to a chestnut, or a bee-martin (kingbird) to a real martin such as lives in martin-houses. I have heard authentic-sounding stories of people being poisoned by the "flowering dogwood," a true dogwood flowering in May, but I never fairly believed them.

Ballard Vale, Mass. Steven T. Byington.

Cold Weather in the Midst of the Honey-flow.

Conditions and weather here are about the same as in other western states. It was cold and windy up to June 15; then for two weeks we had a good flow; but it has again turned cold and cloudy, clearing at night, with light frosts in the morning. But in spite of the cold the flow continues good. Alfalfa is in full bloom, and very fragrant. I have never before experienced such a cold spell coming in the midst of the honey-flow without the flow being checked. Nevada seems to be an exception.

Reno, Nev., July 6. M. W. Harvey.

Good Record for an Old Queen.

Three years ago I started as a novice with one colony and the *A B C of Bee Culture*. I increased this one colony to four, and that winter bought three colonies that were starving from lack of stores.

In 1913 I increased my seven colonies to fourteen, and got 900 pounds of comb honey. This took the blue ribbon at the mid-winter fair.

In 1914 I increased to thirty-three colonies and took off 11,000 pounds of comb honey, not counting the fall honey-flow. How is this for a queen four years old?

Kissimmee, Fla. B. E. Robinson.

A. I. Root

OUR HOMES

Editor

Her price is far above rubies.—PROV. 31:10.

Train up a child in the way he should go, and when he is old he will not depart from it.—PROV. 22:6.

By invitation I gave a talk to the Wooster summer school of teachers (mostly schoolma'ams) at Wooster, O., the suggested topic being "Some Lessons of Eighty Years."* As I am not quite 76 years old I cannot very well go back as far as eighty years of *personal experience*. I have a dim recollection, however, of something that occurred 72 years ago. I remember a broad open fireplace with a brisk warm fire, for it was winter time. I was supported on warm pillows in a rocking-chair. At the right and left and back of me thick warm blankets were hung up. How did I come to be in this predicament and with such surroundings? Well, some days before, I had caught cold, and I think I had an attack of croup. Our family doctor was called; and as he went away he said:

"Do not let that child even so much as look out of doors, for he is threatened with lung fever."

Well, not long after the doctor's visit, preparations were being made to brimstone a hive of bees to get the honey. Let me remark here that my good mother had said that at even that time of my life I was a great hand to ask questions. I wanted to know the whys and wherefores of all the wonderful things going on in this teeming world. I had tasted honey, and asked *where* the bees got it and how they got it. Then when they talked of killing the faithful and industrious little insects I had a lot more questions. I asked if there was not some other way, and where they would get more bees to gather honey the following summer, etc.

Notwithstanding the doctor's orders, even if I knew of it, in my enthusiasm to know more about the bees I forgot or ignored it; and when the wooden latch to that rustic door of the little log house was "unketched" I pulled the door open, and, childlike, pushed out to see what they were doing with their shovel of coals and brimstone.† I stubbed my toe, or slipped on the snow, and the first thing the crowd around the hives knew of my presence was to find me fallen down, with my hands sprawled out in the snow. By this time my mother or one of my older sisters was asking, "Where is the baby?" I was carried in and placed in front of the fire as mentioned above. I grew rapidly worse, and *finally* a *council* of doctors was *called*. *But* they said it was too late—the child was past help; his falling down in the snow was more than he could stand in his frail condition. They gathered up their medicines, and told my good mother there was no use of their coming any more; the baby would not likely live till morning. But *mother* did not give up. Did you ever know a mother to give up? She watched over me, and in the stillness of the night prayed that the little spark of life might be kept going. After days and perhaps weeks of untiring care and devotion her prayers were answered. Some one inquired which one of the three doctors had succeeded in pulling me through. The doctor replied, "No *doctor and no medicines* saved his life. It was the mother's love and the mother's prayers." "Her price is far above rubies." I lived; but I was a feeble child, not only for months but years. When I went to school they laughed at me and called me "Pipestem." But although I was pipestems physically I could keep up with any of the rest, mentally. As soon as I was old enough I was taken to Sunday-school; and I one sabbath astonished the class by repeating forty verses of scripture; and when the older children laughed at my unending curiosity and odd questions, mother used to say, "Amos, when he grows up, will be just as smart and capable as any of you. You watch and see."

As a consequence she gave me, perhaps, more loving care than any of the other six who were strong and healthy. Some good doctor told her to keep me in the open air as much as possible; and this is why I have always been so fond of gardening and seeing things grow. She taught me to care for the chickens, and told me all she could about bees.

I think I was between nine and ten years old when I found a chapter on electricity in our old doctor book. At that time we had so few papers and periodicals in the home that I had at that age read over pretty much everything in print to be found in our humble home, including the dictionary and the "doctor book." I was so excited

*With some changes I propose to give this talk, and I hope my good friends will pardon me if I tell *again* some things that I have already given on these pages in the past. To make my story *continuous* I cannot very well *avoid* these repetitions.

†Please remember that friction matches were not invented at that early day. The only way to start a fire was the old fashioned flint and steel, or go to the neighbors for a shovelful of coals; and it was getting a shovelful of coals out of the old fireplace to brimstone the bees, probably, that aroused my curiosity.

about what I found in regard to electricity that I soon had a home-made battery. It did not work, however, as I expected, and I applied to the family doctor and to my schoolteacher. When I got hold of Parker's Natural Philosophy I was almost wild with delight. I shall always remember the evening when I first got my battery to work. A traveling lecturer had magnetized my knife, and with it I had made a magnet of a good-sized steel pen. It was balanced on the head of a pin driven into the table. Now with one of the battery wires laid on the table just under the steel pen (that was pointing north) I could make it swing around by making and breaking the electric current through the wire; and when I could make that magnetic needle bob back and forth by simply touching the wire at *the further end of the room* I was delighted beyond measure.

A little later the principal of our Mogadore schools made me a present of an old book called "Conversations on Chemistry." I read it over and over, backward and forward, from beginning to end.

When I was thirteen years old an uncle invited me to spend the winter with them at Wellsville, on the Ohio River, promising to give me all the advantages of the Wellsville high school. Before deciding in what department I belonged, the superintendent put me through an examination. As he did not mention natural philosophy and chemistry, and knowing they had a fairly well-equipped laboratory, I asked if I could not have chemistry and philosophy with my other studies. I noticed a sort of smile on his face as he questioned me in regard to these branches; and I took great pride in "showing off" my acquirements. When he decided that for the present I had better stop these scientific studies I protested. He replied something as follows:

"My young friend, did you ever see an apple-tree with great branches all off on one side? May be you have seen such a tree after the wind had blown it over because it was 'lopsided.' Well, you are like that tree. You have been following your own bent in these studies that usually have a place later on, until you are 'lopsided.' Just now you particularly need grammar."

When I replied that I did not *like grammar* he laughed and said:

"That is about what I expected, and it is *our* business *here* to help you to *like* grammar."

Then he took me into one of the rooms and brought me to one of the women teachers. At first sight I was drawn toward her, for I thought she looked like my good mother, and I was just getting homesick, especially when I was told I could not study chemistry and electricity nor go into that laboratory which had been in my mind's eye since the first thought of going to Wellsville. The superintendent said, "Miss Udell, here is a young man who thinks he does not like grammar. Now, I hope you will be able to persuade him while he is with you that he *does* like grammar."

She put out her hand to me with that kindly smile of hers, and said she felt sure we should be good friends anyway. Then I made a mental resolve that, if we did not get to be good friends, it would not be *my* fault. Through that four months of schooling the prospect of getting a glimpse of her encouraging smile was the strongest incentive to work while at my studies. At that time, over sixty years ago, we used to "go up" in the grammar class as we did in spelling. I remember the superintendent coming in after I had been a few weeks there, and saying to Miss Udell, "Oh! how about that boy who did not like grammar? How did you two get on together?"

With some pride, no doubt, she pointed to me and remarked smilingly, "He is at the head of the class, as you see, and stays there; and he is making remarkable progress in all his studies as well as in grammar."

Let me pause a little here. Suppose that at that early age I had been allowed to have my own way, and study what I liked, and skipped grammar. Imagine, if you can, the predicament of the editor of a family journal that goes over all the world, and yet who has never studied grammar! I do not know but some of the other pupils thought Miss Udell was partial to me, and gave me more of her time and attention than she did the others; but if so it was because I tried so hard to please her; and I thank a kind Providence that it has always been easy for me to learn *anything* when I get right down to it and work hard.

Miss Udell, bless her memory, was not the only schoolteacher who made friends with me and gave me a helping hand; and as a consequence I can most devoutly say, as did King Solomon, of the good bright "school ma'ams" all over our land, "Her price is far above rubies."

I attended Sunday-school faithfully until I was about eleven years old. When I was four years old my parents moved into Summit County, where my mother's father gave us a home. Our circumstances were such that it was a task on the part of my good father to provide for a family of seven; and my oldest brother, who was but a little more

than a dozen years old, found work in a pottery. Some of the men in the shop were not only profane, but they were well known as unbelievers in the Christian religion, and they poisoned this young brother's mind until he stopped going to Sunday-school, making him think it was only a place for little children, etc.

Let me put in a word of warning to parents right here. No matter what *price* may be offered, do not let your boys (or girls) go to work under the influence of ungodly men. I am sure my mother demurred and protested; but father thought he could not keep so many unless they helped to earn a living. Finally my brother and I, when we stopped going to Sunday-school, wandered off into the woods Sundays and got among bad associates. Father had often expressed a wish to leave the village home and go back to the farm in Medina County; and I think he gave as one reason that he thought his growing boys would be better off on the farm back in the woods. We accordingly moved back when I was a dozen years old. But my good father failed to calculate that there are bad boys in the *country* as well as in the town and cities. I have already mentioned how he finally laid down the law and told my brother and me one Sunday morning, "Choose ye this day whom ye will serve." I have told you about how my brother finally turned the scale and recommended that we both go to church, at least for once. I have told you, also, that on that eventful Sunday I got about the first glimpse of Mrs. Root. She was one of the singers in the choir. By the way, friends, as you may have already discovered, I have been all my life greatly given to hobbies; and I sometimes ride these hobbies fast and far. The traits of childhood, the desire to investigate and find out all that is to be known about the wonders of God's creation, have followed me through life, and some of my happiest moments have been, perhaps, when I was investigating and exploring, to the further limits, some of God's creation. I believe I have always had a peculiar liking for the other sex. My good mother said that when a child I always preferred to play with the girls. The boys were, as a rule, too rough for me. Through my youngest sister, who was a very close friend of Mrs. Root in her childhood, I soon became acquainted with Mrs. Root. The reason I had not known her or of her was because I had been away attending school as mentioned above. Fifty or sixty years ago it was the fashion for boys of sixteen or seventeen years to go "courting" the girls. The two usually had a room by themselves, and often stayed there far into the night unless some good father or mother interposed. In due time I got in the habit of going home with her who is now Mrs. Root, after church; and when it was time for *me* to go home I did not seem to know it. One Sunday evening Mrs. Root said to me, "You are going to school, and I am going to school. Our good parents are trying hard to give us the benefits of an education. It is time for you to go home so that both of us can get the rest we need, to give proper attention to our studies."

I did not like the idea of being dismissed, and finally declared that if I went home *then*, I never would come back again. Kindly but firmly she told me that in such a case it would be better for her, at least, if I did not come back. I said, "All right." I went out and closed the door in a not very pleasant frame of mind. I started down the hill toward the river, with long strides. But my strides kept getting shorter and shorter as I reflected. When I approached the river bridge I came to a standstill. I reflected for a minute. At that time I had not found that precious text at the head of our talk; but I did reason, perhaps, that my dismissal indicated, at least along the line of the text, "her price is far above rubies." I started slowly to go back. I walked faster, and finally hurried up to the front door that I had just left. Her room was upstairs, and her window was over the front door. I picked up a little pebble from the walk and tossed it against the window-pane. The sash went up as I expected it would, and I said, "Sue, forgive me. You are right and I wrong;" and in her usual way she simply said, "Thank you; good night," and then the window went down. How many girls are there who are reading these pages who have the good sense (especially at fifteen) to do as Mrs. Root did?

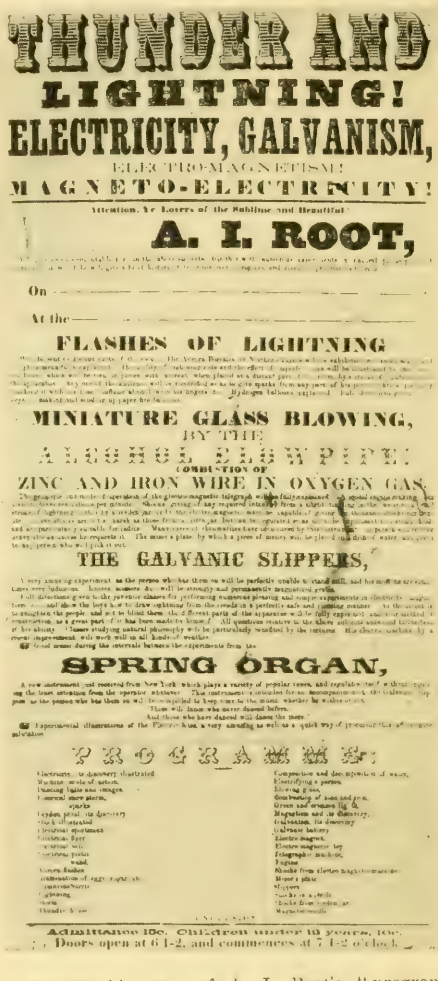
After this it was pleasantly understood that I was always to go home at a particular hour. But I not only made my calls on Sunday evenings but also on Thursday evenings, and sometimes *between* times. I attended to my studies and was making fair progress; but Mrs. Root did not learn as readily as I did. My frequent visits interrupted her studies. She had the good sense, even if I had not, to know that we both were *too young* to keep up any such fashion of being together *so often;* and finally she soberly and kindly, but perhaps sorrowfully, told me that she felt sure it would be better for both of us to stop our frequent visits together for some time—

perhaps several years. I protested, and I do not know but I threatened again; but she declared her conscience told her it was best. I asked her to set the time, say within two or three years, but she refused to do even that. She said we both were quite liable to change our minds before we became of marriageable age and it would be better to leave it with no pledge or promise. Then I went off into the "cold empty world," as thousands of other boys have done under similar circumstances. If you want to know how many men and women commit suicide just because they have been disappointed in love, look over the daily papers. Other young men and boys, I am sorry to say, go and get drunk, and say they do not care *what* becomes of them. I did neither. I just decided that, if I could not court the *girl* I loved, I would court *science* and become a "great man."

During the winter that followed, I studied harder than ever before. In school, in addition to the common studies, I had algebra, geometry, and shorthand, and was making experiments in chemistry and electricity during the evenings. In order to get exercise so that I could stand so much study I walked two and a half miles to school and back again, and cut all the wood to replenish the fire for the family, and while I experimented sometimes late at night it did not hurt me a bit. The walk through the woods developed my bones and muscles so they did not call me "Pipestems" any longer.

Now right here let me tell you something that will more fully illustrate Mrs. Root's good sense and wisdom. A fellow-student—in fact, a young man with whom I was intimately acquainted, told me, in speaking of what I had accomplished during that one winter, that *his own* schooling was just about a complete failure. When the school first opened he got in with a class of boys and girls who called themselves the "Euchre Party." They got into such a craze for playing cards that they spent about all their time, not only during the day but late at night, in card-playing—an occupation that amounted to nothing or worse than nothing; and when they came to recite they were just a drag on the school. Years afterward this man realized what he had lost by *wasting* the best hours of his early manhood. His good father and mother worked and scrimped on the farm to provide the means for him to go to town and attend school. Do you wonder that I feel pained whenever I see or hear of *card-playing*?

Another point comes in right here: The average boy or girl is far better off in the home under the father's and mother's care, especially when getting an education. My tramp of two and a half miles every night and morning, and the muscular exercise given by chopping firewood, were *splendid investments* when I was just turning from boyhood to manhood. The parents of these card-players paid for their board, and they had a room of their own, so they (boys and girls both) could sit up *all night* if they chose, and no one were near to hinder.



THUNDER AND LIGHTNING!

ELECTRICITY, GALVANISM,

ELECTRO-MAGNETISM!

MAGNETO-ELECTRICITY!

Attention, Ye Lovers of the Sublime and Beautiful!

A. I. ROOT,

On ——— ——— ——— ———

At the ——— ——— ——— ———

FLASHES OF LIGHTNING

MINIATURE GLASS BLOWING,

BY THE

ALCOHOL BLOWPIPE!

COMBUSTION OF

ZINC AND IRON WIRE IN OXYGEN GAS.

THE GALVANIC SLIPPERS,

SPRING ORGAN,

Admittance 10c. Children under 10 years, 5c.

Doors open at 6 1-2, and commences at 7 1-2 o'clock.

Photographic copy of A. I. Root's "program," as he had it printed when he was 16 years old—almost 60 years ago.

I wrote several articles for the *Scientific American* before I was seventeen. These were accepted and published. In the mean time I began to go into the country schoolhouses and give talks and experiments. The idea that *a mere boy* was giving lectures attracted attention. I had full houses, and

with the money I received I was able to purchase better and more up-to-date apparatus. A few days ago the editor of our Medina *Gazette* sold out; and in removing some stuff from the office he ran on to an old handbill printed almost sixty years ago. On the preceding page is a copy. You will notice there is a blank before the name A. I. Root. Do you want to know what word occupied that blank? It was "Prof." Mrs. Root was still keeping track of me, although it was rather at arm's length. She objected to the word "Prof." and asked me what I was a professor of. I told her I was a "professor of electricity and chemistry," and that "folks wouldn't come" unless I put on—"Professor." Just think of it, friends—"Prof." of electricity and chemistry at the age of sixteen! Did you ever?*

Before I was quite seventeen I decided to go off into the big wide world. My father laughingly told me he would have to send me money to get home with before I had been gone a month. I replied:

"Possibly you will, father, but just wait and see."

My father's little prediction did me good. I doggedly determined that, come what would, I would not send for money to get home. My first trip was out in the western part of the state in what is called the Black Swamp. I fell sick and got out of money, and had to leave my apparatus at a hotel. Between sundown and sunrise next morning, on one occasion I walked 24 miles to reach a sister of mine who lived in Elmore, Ottawa Co., but I finally came out ahead, and when I got home about a year later I had some money in my pocket.

In order to keep my apparatus in repair I often called on jewelers in towns I passed through; and at one place I took a little rest and paid a jeweler $25 for two weeks' instruction in repairing clocks, watches, and jewelry. When I was 19 I was sufficiently expert so that one of our Medina jewelers asked me to care for his shop while he went east to buy goods. During the 4 or 5 years that had elapsed since Mrs. Root had dismissed me I had seen but little of her. I thought it was her business to send me word saying I might come back. But she evidently did not propose to do anything of the kind. While I was taking care of the store mentioned, one day Mrs. Root opened the door and looked in; and when she saw me instead of the proprietor she hesitated and said: "Why, isn't this Mr. Herrick's shop?"

I replied, "Yes, this is Mr Herrick's but I am taking his place for a few days while he has gone east."

She was about to close the door and go away; but I ventured to suggest that perhaps I could wait on her. She finally came back, saying she simply wanted a piece of jewelry repaired. After that had been attended to I ventured to ask her if she was staying in town. Without looking up she replied that she would probably stay with her sister (who lived in town) over night. Then I ventured to ask if I might deliver the piece of work in the evening. At this she ventured to look up, and her eyes met mine. She replied faintly, "If you like." I knew then, and she knew, that the "embargo" was raised. That was the night of the terrible frost, June 4, 1859. The next morning the landscape was white with hoar frost. The wheat was killed, the fruit was gone, and the gardens were ruined. The price of flour went up to an extravagant figure until people got over their fright. Now, when everybody else was sad and sorrowful my heart was light, and I was as happy as a bird. The "cold empty world" was past and gone. What did it matter whether we had frost or cyclones, or even earthquakes? She whose "price is far beyond rubies" had linked her life with mine, until death should separate; and may God be praised for having *permitted* us to tread life's pathway together for more than 54 years. Most faithfully has she kept *her* part of the pledge.

*When I, a few days ago, held up that old program before Mrs. Root, she immediately centered her gaze on the "Prof." before the name A. I. Root, and said "Please cut that out before anybody sees it."

"But," said I, "why, Sue, that was put on there *sixty years ago.*"

"*I do not care how many years* it was—cut it out before anybody sees it."

"But I was only sixteen years old when I ordered this bill printed that way."

"I do not care whether you were sixteen or sixty—I would not want anybody to know that you were ever so foolish at *any* age."

The lapse of sixty years' time doesn't seem to have changed her convictions very much. She "is of the same opinion still." I did as she directed, as you see; but I did not tell her I was going to have it printed.

Now just a word in conclusion. There is a great deal said about "eugenics" just now. The attention of young men is being called to the fact that the kind of boys and girls they give the world depends largely on the *girl* they choose for a wife. If you want your children to be a blessing to the world, instead of helping to fill our penitentiaries and asylums, consider carefully before you choose. If you want a partner for life whose price *is* "far above rubies," do not look for her in the dance-hall nor at the card party, but, rather, seek to find her in the church, in the Sunday school, Endeavor society, etc. Some girl singing in the choir of some country church will very likely be the one in after years to show that "her price is far above rubies."

HIGH-PRESSURE GARDENING

THE SPINELESS CACTI OF THE FRUIT-GROWING VARIETIES.

When I first visited California I was a good deal interested in the beekeepers' ranches. At that time the proprietors of most of them were single men. I was especially pleased and attracted by the beautiful home of G. B. Woodberry, of Glendale, near Los Angeles. Some of our older friends may remember that about that time I was particularly vehement about urging these bachelor beekeepers to have a wife, at least when they were, say, 25 years old or more. Well, the next time I visited that pretty little home I found a wife there. Of course I do not know how much my advice had to do with it; and with this preface I want you to read the nice letter below.

Mr. Root:—I read with interest your remarks concerning the spineless cactus some time ago, and I am sending you by parcel post a cutting from the variety called the Malta. It may grow in Ohio during the summer, and it can be taken up and carried to Florida in the fall if you wish to try it there. I also send some of the literature of five years ago concerning the subject.

I find it makes a good hedge-plant, and, with garden culture, a remarkable growth. Without care, however, the results are very much less—at least with this variety.

I had one plant in the garden that set over 200 new slabs the third year while a similar plant on the ranch, without water, set only a few.

I am told by the Los Angeles branch of the A. I. Root Co. that you and Mrs. Root expect to be in California this summer. You will, no doubt, remember me and the strawberries which you picked at my place in the winter when you visited me over twenty years ago. I was a bachelor then; but now I have a daughter who graduates from college this spring. I still have the ranch, a "mess" of bees, and shall expect a call from you and Mrs. R. when you visit Los Angeles. The Glendale cars run to within 200 feet of our home in Glendale.

Glendale, Cal., April 10. G. B. WOODBERRY.

Before this letter came I had been longing for a sight of my cacti growing in Florida; and I had really thought of trying a leaf in my Medina garden, even if it should cost me a dollar or more. Imagine, then, my happy surprise on receiving a leaf 19 inches long, 8 inches wide, and weighing 4½ lbs., and so smooth and free from spines that you might give it to the baby to play with. The variety is what is called the Malta. Below is a description of it:

MALTA.

A good, hardy, rapid grower; leaves, medium size, 18 inches long by 8 wide; very few short, weak, hair-like spines; bristles almost wholly absent; fruit nearly 4 inches long by 2 in diameter; skin yellow, turning to light red when fully ripe; flesh, salmon, with crimson shadings; seeds small; bears abundantly even when quite young. A most desirable variety.

What do you think, friends, of a cactus fruit 4 inches long and 2 inches in diameter, and more luscious than an orange? By the way, perhaps I should say that Ernest says he tasted of the fruit during his recent trip in California, but did not like it very well.

I am sure our good friends will excuse me if I digress enough here to say that Mr. Howard R. Calvert, my next oldest grandson, was married June 29 to a young lady he met in California—a daughter of Mrs. H. G. Acklin, who for many years had charge of our St. Paul agency. Howard and his bride started immediately after the ceremony for their home in San Francisco, and I shall now be able to get accurate information in regard to spineless cacti, both fruit and fodder, from California as well as Florida.

You will notice that friend Woodberry agrees with the statement made by the Department of Agriculture on page 515, June 15, in regard to growing plants under culture compared with letting them grow wild. Before I got this information I had pretty well satisfied myself, from the way my plants grow in Florida, that, like all other vegetation, it would respond to thorough culture and fertilization.

As there has been some contradictory information in regard to planting, I copy the following from one of Burbank's circulars.

SPECIAL DIRECTIONS FOR SUMMER PLANTING OF THE BURBANK CACTUS.

1. Dry plant for a day or two in the shade.

2. Plant cutting in the ground to the depth of one-half.

3. If the ground is moist, pack the earth about the cutting firmly, and water after a few days. If the ground is dry, water on planting.

4. Shield the cutting from the direct rays of the sun until rooted to prevent sunburn.

5. Do not water too much. Never keep the soil soggy.

SPINELESS CACTUS AND THE FLORIDA GROWER, ETC.

In our issue for June 15 I published some of the claims of Samuel C. Kidder in regard to the spineless cactus. Well, our friend Kidder has been in the habit of carrying an advertisement for some time back in the *Florida Grower*. It seems that the *Grower* considers his claims almost too extravagant, and, as a consequence, Kidder's advertisement has been recently changed so as to read as below:

SPINELESS CACTUS.—Certain varieties are very valuable, notwithstanding some professional opinions and chemical analysis. This paper refuses to publish evidence in its favor from a reliable resident grower. Send stamp for catalog of varieties that are right. SAMUEL C. KIDDER, Monticello, Florida.

I congratulate the *Grower* on keeping an editorial eye on its advertising pages as well as on the reading-matter. Mr. Kidder now must shoulder the responsibility, and it is up to him to give us unbiased proof of what he claims as possible with the new creation in the way of spineless cactus.

SPINELESS CACTUS—BURBANK, AND THE OTHER KIND, ETC.

Mr. A. I. Root:—Your notes on spineless cactus interest me very much, especially the *ignorance* most writers display in regard to it. They seem to name all spineless cactus "Burbank." Now, Mr. Burbank has originated (or claims to have originated) several varieties of cactus that make an enormous growth of slabs and fruit *at Santa Rosa, Cal.*, where they have rich adobe land and an annual rainfall of about 25 inches; but the same varieties of cactus hardly grow at all here in Fresno Co. with or without irrigation; but the government cactus (or, rather, the cactus imported by the United States and propagated at Chico, Cal., and distributed free) grows here very nicely, and I have growing on very poor land about 2500 slabs. I was at Santa Rosa at Mr. Burbank's place, and saw a growth of 200 tons per acre (not a whole acre), and I saw the fruitage of *90 tons per acre* (not a whole acre).

I strongly suspect that Mr. Burbank highly fertilized the *already* rich land. In fact, I saw white powder on the ground, and it was not alkali either. I have spent considerable time and probably $50 in money investigating and buying spineless cactus. Many varieties are worthless. Some varieties are valuable only for fruit, which carries a high percentage of sugar, and other varieties produce slabs at a great rate. It has about the feeding value of pie-melon, and stock will *live over famine times* on cactus; and since it can be grown and allowed to accumulate from year to year on the land until 1000 tons or more has accumulated on the acre, it is reasonable to figure that when famine or dry years come along, as they have done and will do again, the cactus will be valuable to save the stock from starving to death, as they often do in the West and Southwest. I have seen the chickens peck the slabs all to pieces when green feed was scarce.

I have seen plants produce here in Fresno Co., at Mr. J. C. McCubbin's of Reedley, Cal., at the rate of 114 tons of slabs per acre (Chico or United States varieties). I think it is worth $1.00 per ton as a dry-year feed-over ration; and 1000 tons can be accumulated on an acre in five years with very little labor, irrigation, or care, and will need replanting about once in fifty years. The land gets richer and richer where cactus grows. Thus, it seems to me to have some real value. The Miller & Luz Co. planted 80,000 slabs for this very purpose. The cactus at Mr. McCubbin's was not *irrigated* nor *sub-irrigated*, and the rainfall was 11 inches. Poor land will grow cactus; but rich loamy grows better, and yields better cacti. I have read and studied all the literature to be found in the library of the University of California on the subject, and I have seen it growing under all conditions I could find, and am experimenting with it, and still hope to find it of value. I can tell you a great deal more about cactus if it is interesting to you.

Selma, Cal., June 27. O. S. DAVIS.

We are very thankful to get the above information right from headquarters, or, rather, from near where Burbank brought about his wonderful results. It seems to me that a dollar a ton is a rather low price for cow feed compared with timothy hay and alfalfa—say from $15 to $25 a ton. On page 515, June 15, I copy from a government bulletin the statement that an acre of prickly pear is worth more than six times the value of sorghum for feeding purposes. According to this a ton of sorghum is not of very much value, say just as it is cut for cattle feed. It seems to me there is a discrepancy there somewhere. Also notice what friend Borcher says about these for feed on page 557, July 1. I am also pleased to note from the above that the chickens will take it as green feed. I am sure this is going to be quite an item in its favor in Florida.

Later.—To-day is July 26; and the cactus mentioned above, planted about July 1, has now eight little slabs started (one almost as large as my hand) and it is growing rapidly every day. I expect to give you some pictures of it, illustrating how rapidly this spineless cactus grows when it once gets a start.

TEMPERANCE

A LETTER FROM THE GOVERNOR OF KANSAS HIMSELF IN REGARD TO PROHIBITION IN THAT STATE.

No doubt our readers have been pained to see statements in our daily papers to the effect that Kansas is "Hard up" financially, etc., in consequence of their "puritanic prohibition law." Before submitting to our readers the positive statement of the governor himself, we give below a letter from our untiring and indefatigable prohibition friend Minnie J. Ellet:

East Akron, Ohio, July 22, 1915.

My Dear Brother Root:

A few weeks ago one of the liquor-license commissioners of this county told me that the governor of Kansas had said that all his state could do to save herself was to go back to license and regulation. I told him one of us was grossly misinformed in regard to Gov. Capper's attitude, and that that week's *Union Signal* had a splendid article, excerpts from the governor's speech before Kansas bankers. I told our commissioner that, and he set it down as "misquotation of a temperance paper that always makes things too big." I wrote to Gov. Capper that night, and on another sheet I'm sending you the exact copy of that letter.

Yours for God's glory through the highest *good* of all for whom he died. MINNIE J. ELLET.

Below is the letter referred to, from Governor Capper, of Kansas:

STATE OF KANSAS
ARTHUR CAPPER GOVERNOR.

Topeka, June 24, 1915.

Dear Miss Ellet: —I have your letter of June 22 and note the statement that Mr. C— attributes to me. Neither Mr. C— nor any one else ever heard me say that "prohibition is a failure wherever tried," or any other statement of a similar nature. But I have said, and am glad to repeat here, that I think one of the greatest blessings ever bestowed upon this state, and the law which is doing more to make good men and women, and to bring prosperity and happiness to the people of Kansas, is the amendment to the constitution, prohibiting the traffic in intoxicating liquors.

Kansas has had prohibition for about thirty years, and it may be truthfully said that the law was never so well enforced as now, and never so generally approved by our people. Approval, indeed, is too mild a word with which to express the attitude of Kansas people toward this provision of the state constitution. Most of them are enthusiastically in favor of it. It is *the* portion of the fundamental law of the state that is nearest their hearts.

I am returning the clipping from the *Union Signal*. I am correctly quoted in that article.

I am emphatically and enthusiastically in favor of national prohibition, and am always glad to do anything I can to hasten the day when there will not be a saloon in this or any other country.

With best regards, I am
Very respectfully,
ARTHUR CAPPER.

THE "ACHAN" OF THE LIQUOR-TRAFFIC.

Some of the friends thought, no doubt, I was rash in suggesting in Our Homes for June 1 that God permitted this great war, with its awful loss of life and property, because the United States and other nations persisted in *cherishing* the liquor-traffic for the revenue, etc., it furnished. With this matter in view it is a little refreshing to find the clipping below, which I take from the Chicago *Farming Business*.

BREAD OR BOOZE.

Great Britain uses more grain in the manufacture of alcoholic liquor in one year than she produces in her own territory in the same length of time; so that, in effect, her people are not working their farms for the purpose of making bread with which to feed themselves and their fellow-citizens. Rather, they are working them for the express purpose of manufacturing booze with which to destroy the economic efficiency of themselves and their fellow-citizens. The whole country is dependent on its imports for its bread.

We cannot conceive of any poorer business than this, that a nation should use all the grain which it produces in the manufacture of liquids which sap the vitality and efficiency of its people without adding to any one desirable or useful quality, thus leaving the nation dependent upon the outside world for its bread and cereal foods. Such a practice is a fundamental economic error, and it seems to have taken this great war to teach Great Britain the folly of such a method.

The great war of the past nine months has taught the nations of the earth, as no moral wave or religious campaign ever could have taught them, the absolute uselessness of alcoholic beverages. It is not a moral lesson which is being taught so much as it is an economic lesson. And out of this war will come the greatest good which ever yet has been done to the cause of temperance and of personal and national efficiency, for it will have taught very forcefully the individual and national damage which comes from diverting the grains of the world to the manufacture of harmful drinks rather than using them for the manufacture of bread and other foods.

When I wrote that Home paper I was not aware that Great Britain used practically every bit of grain she raised for making booze; and I was not aware, either, that Great Britain was getting toward the point of starvation. See recent dailies in regard to the way the "high cost of living" has gone up in London. It rejoices my heart to see the way in which our agricultural and farming papers are standing up for prohibition. It is a terrible punishment we have been receiving, I admit; but I am firmly convinced that out of this great war will come one of the greatest benefits to humanity. I wish the clipping above might be copied and sent broadcast over all the earth. May God be praised that we have at least *one* farm paper and one farm *editor* who has enough breadth of character to look ahead and recognize the lessons God has been striving to teach the whole wide world.

GOD'S KINGDOM COMING; MORE EVIDENCES OF IT.

We clip the two following items from *Farming Business*, of Chicago:

BOOZE OFF THE BOARDS.

The Associated Bill Posters and Distributors of the United States and Canada will not take any booze advertising the coming year, according to a promise by Donald Ross, testifying before Judge Landis in Chicago for the bill posters.

ARREST HOTEL-KEEPERS.

Chicago hotel owners and managers will have to bow to the law soon, according to statements of the anti-saloon leaders. Managers of the Sherman, Fort Dearborn, and La Salle have been arrested for selling liquor on Sunday.

And here is something from the Cleveland *Plain Dealer* of July 1:

ALABAMA LEGINS GRAPE-JUICE DIET.

BIRMINGHAM, Ala., June 30.—After trying prohibition four years and then limited saloons four years, this state again becomes totally dry on the stroke of midnight to-night.

Although extra police precautions were taken to prevent any disorder at the wake of the liquor business, the officers had little to do during the early part of the day.

The law which makes Alabama totally dry was passed about six months ago by the legislature, and allowed the liquor men until to-night to get their affairs in shape and go out of business.

Along with this law measures also were passed prohibiting the advertising of liquor within the state and making it unlawful for express or railroad companies to accept shipments to firms or individuals in excess of two quarts every thirty days.

These bills were designed to prevent the state being flooded with literature and wet goods by mail-order houses outside the jurisdiction of Alabama courts. Both measures have been upheld by the courts.

"GOD'S KINGDOM COMING."

Some years ago, while up in Puget Sound, Washington, my good friend H. A. March gave me a little experience of a wet-and-dry fight they had in their own county. After having a fierce battle the wets won out by a narrow margin, and a saloon was opened up not far from Mr. March's home; but, to the great astonishment of everybody, it did not pay expenses. In fact, it starved out in just a few months. Public opinion had got ahead of the law in spite of the trickery and cheat of the wet side. There was nobody to buy the drink after they had won the battle, as they supposed. Well, I have been watching for this very thing. With the advance the world is making, it would be strange indeed if public opinion did not starve out some of the saloons after paying $1000 or more license.

Below is a clipping from the *Union Signal:*

100 MILWAUKEE SALOON KEEPERS TO ABANDON BUSINESS.

It is reported by the Philadelphia *North American* that more than 100 saloonkeepers are to go out of business on July 1. This information is said to be contained in the annual report concerning saloons sent to the city council.

Just now I read in the *American Issue* that the Board of Health of the great city of New York has decided "It is as necessary to fight drink as it is to fight an epidemic." Does not that sound sensible, even if it has taken years to find it out and arrive at such a conclusion? God's kingdom *is* coming.

THE FOOT AND MOUTH DISEASE NOT THE WORST "MOUTH DISEASE" AFTER ALL, ETC.

The following is clipped from *The Day*, of New London, Ct.:

Can any argument prove that the one deep need of New London is not an ocean terminal, but a termination of the power that turns men into bleareyed soaks, as Billy Sunday puts it? It is not a college for training the minds of our daughters how to think correctly, but a civic conscience that will safeguard the homes of the men our daughters will marry.

It is stated that the hoof and mouth disease broke out among cattle fed on the slop and refuse of distilleries. But one has only to listen to the vile language of rum-filled men, and he can trace the origin of a worse "mouth disease" than that of an ox. Billy Sunday says that "alcohol will remove the stains from summer clothing. One has only to walk around the rum-cursed sections of New London to see that alcohol will also remove the clothing as well as the stains. Visit the pawn-brokers' shops, and you will see that alcohol can remove a ring from a woman's finger, a watch from her husband's pocket, tools from the workman's chest, and, worst of all, clothing from the children's backs."

I appeal to the manhood of this beautiful city to rise in their true strength and move this remover of the best things we have in our homes. The saloonist insists that the liquor business is "good for business." But he cannot prove that it is good for any business under the sun but that of the undertaker. REV. FRANCIS ADAMS.

RETURNING THE EMPTIES.

Collier's Weekly says:

Rev. E. M. Evans, of the Trinity Methodist Church, Des Moines, Iowa, got one of those circular letters booming "Old Bob Adams" whisky. He printed a reply in the Des Moines *Register and Leader*, that should interest every intelligent man whose talents are being misused in the booze business:

"I note you pay the freight on returned empties. I should like to send you a full carload of empties if you will honor your agreement. I suppose the freight will be much cheaper on full carload lots. To be honest with you, the empties are not in first class condition. They consist of empty men—empty of manhood, energy, ambition, prospects, self-respect, and necessities of life—empty head, empty heart, empty soul, empty stomach; also empty women, empty of womanhood, refinement, modesty, and hope. Will it be worth while making the return of this carload of empties? Will this carload of empties be worth the freight to you?"

Do you haul back your empties, Mr. Respectable Distiller, or are you dumping the junk of them on the jail and the poorhouse?

CINCINNATI, AND WHAT THE CITY IS DOING TO KEEP UP THE OHIO PENITENTIARY.

We clip the following from the *American Issue* for July 23:

Mr. R. A. Mack, Cincinnati, Ohio—

My dear Sir:—I am the matron of the woman's department of the Ohio Penitentiary, and I desire to say there are more prisioners from Hamilton County in the woman's department at this time than from any other county in the state. One-fifth of our population are from Hamilton County, and at least 85 per cent of the prisoners in the institution are here from drink. Sincerely,

CORA R. WELLS, Matron Ohio Penitentiary.

THE FLYING-MACHINE—A NEW USE FOR IT.

When I was having such an enjoyable time in being with the Wrights when they made their first experiments, my enjoyment was greatly marred on being informed by Wilbur Wright that the flying machine would probably be of more use in war than as a vehicle to assist commerce and travel; and it has saddened my heart again and again to see this prediction fulfilled before my eyes. Well, just now I find the following clipping in *Farming Business.*

HUNT FIRES IN AEROPLANE.

Jack Vilas has received an appointment as forest ranger, and will range the north woods of Wisconsin in his hydro-aeroplane instead of sitting on top of a 90-foot tower and looking at a limited range of country. By using his machine he can rise to such heights as to discover a fire 50 miles away, and quickly fly to the scene and report for re-enforcements if needed.

From the above it seems that this same flying-machine is destined to do great work in preventing forest fires from getting such a start as to destroy miles of timber, and sometimes almost whole towns and villages. May God hasten the time when the flying-machine will prove to be an aid to peace instead of an aid to war.

POULTRY DEPARTMENT

"SWAT THE ROOSTER," AND THEREBY SAVE $15,000,000 A YEAR.

The Department of Agriculture has just sent out a beautiful placard. At the top of the sheet we read:

"PRODUCE INFERTILE EGGS."

This placard contains eleven pictures of eggs that have been under a hen or in an incubator for different periods of time. As we cannot give the cuts we give the reading under them.

No. 1.—Fertile egg after 24 hours at 103 F.; fertile germ beginning to hatch; not perfect for food.

No. 2.—Fertile egg after 36 hours at 103 F.; blood ring formed; not good for food.

No. 3.—Fertile egg after 48 hours at 103 F.; blood ring not fully developed; unfit for market; will be thrown out by candler.

No. 4.—Fertile egg after 72 hours at 103 F.; blood-vessels of embryo chick clearly marked.

No. 5.—Fertile egg after 7 days at 103 F.; compare with infertile and fresh egg.

1A.—Infertile egg after 24 hours at 103 F.; no fertile germ; no blood ring; still good food; it would be still better if kept cool.

2A.—Infertile egg after 36 hours at 103 F.; compare with fertile egg under the same conditions.

3A.—Infertile egg after 48 hours at 103 F.; still good food.

4A.—Infertile egg after 72 hours at 103 F.; not an absolutely fresh egg, but useful in cookery.

5A.—Infertile egg after 7 days at 103 F.; still usable for food. It would be a perfect egg if it had been kept cool. Compare with fresh egg and fertile egg.

In the middle of the sheet occurs the following alarming information; and it certainly ought to be alarming to every farmer and poultry-keeper.

FERTILE EGGS COST THE FARMER $15,000,000 A YEAR

Farmers lose $45,000,000 annually from bad methods of producing and handling eggs. One-third of this loss is preventable, because it is due to the partial hatching of fertile eggs which have been allowed to become warm enough to begin to incubate.

The rooster makes the egg fertile.

The fertile egg makes the blood ring.

You can save the $15,000,000 now lost from blood rings by keeping the male bird from your flock after the hatching season is over.

The rooster does not help the hens to lay. He merely fertilizes the germ of the egg. The fertile germ in hot weather quickly becomes a blood ring, which spoils the egg for food and market. Summer heat has the same effect on fertile eggs as the hen or incubator.

INFERTILE EGGS WILL NOT BECOME BLOOD RINGS.

After the hatching season cook, sell, or pen your rooster. Your hens not running with a male bird will produce infertile eggs—quality eggs that keep best and market best.

RULES FOR HANDLING EGGS ON THE FARM.

Heat is the great enemy of eggs, both fertile and infertile. Farmers are urged to follow these simple rules, which cost nothing but time and thought, and will add dollars to the poultry-yard returns:

1. Keep the nests clean; provide one nest for every four hens.
2. Gather the eggs twice daily.
3. Keep the eggs in a cool dry room or cellar.
4. Market the eggs at least twice a week.
5. Sell, kill, or confine all male birds as soon as the hatching season is over.

NOTICE.

Valuable published information on the raising and care of poultry and eggs, and individual advice on these subjects may be obtained by writing to the Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

A. D. MELVIN, Chief, Bureau of Animal Industry.
Approved:
D. F. HOUSTON, Secretary of Agriculture.

In addition to the above, *Poultry Life* in an article on the subject says a fertile egg will begin to germinate at a temperature of 90 degrees. If this is true, an egg that has been exposed to a temperature of 90 degrees down in Florida, here in Ohio, or anywhere else, for 24 hours, would become a rotten egg if kept long enough at a moderately warm temperature; and this same authority says, also, that an infertile egg may be under a sitting hen or in an incubator 21 days or more, and still be fit to eat.

Perhaps now I might mention something that I should otherwise have been a little backward about telling. Eggs that do not hatch, either under the hen or in an incubator, I boil and feed to the chickens; and I have never yet seen any bad effects from feeding boiled eggs that had been 21 days in an incubator. If the germ was started, of course the chicks will have "boiled chicken;" and the way they fight for it I have thought sometimes it might start cannibalism.

Well, in cutting open an infertile egg it looks so much like a good egg boiled that I have several times tasted of the yolk, but could find nothing unpleasant about it. In fact, this same poultry journal I have mentioned says that an infertile egg will stand a temperature of 103 for 21 days and still be fit for food.

Now, the above emphasizes particularly the fact that a hen should never under any circumstances be allowed to sit on eggs all night long. If you wish to get a reputation for good eggs, gather them every day sure, and twice a day is better. If the hen steals her nest, use the eggs in your own home. Second, find some place to store your eggs until they are ready to go to market where it is at least moderately cool. Do not leave them an hour in the sun in a warm room, and certainly not anywhere near a hot stove. If you have no cool cellar, and would like to keep your eggs several days, put them in a pail and hang them in the well, as we used to keep the butter in hot weather in the good old times.

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Gleanings in Bee Culture



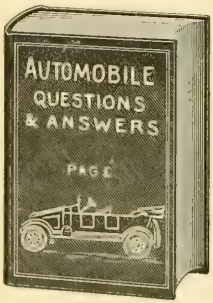
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Photo of W. D. Achord of Fitzpatrick, Ala., with helpers, also his queen-rearing yard. Queen-house and residence in background. With six experienced men, and 600 mating-boxes, also 700 full colonies of pure Italian bees, we are able to give good queens and prompt service. Untested queens, 1 to 11, 50 cts. each; 12 and more, 45 cts. each. Tested, $1.00 each. No disease. Pure mating and safe delivery I guarantee.

W. D. ACHORD, Fitzpatrick, Alabama



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EDITORIALS

The A. I. Root Co. has been awarded the grand prize and also a gold medal by the California-Panama Exposition at San Diego for its general exhibit of beekeepers' supplies and honey. We consider this the best exhibit we ever made.

Beekeepers who are neglecting the information sent out by governmental agencies are missing much of value.

An excellent contribution to the stream of information from such sources is a series by Morley Pettit published by the Ontario Department of Agriculture, Toronto. Two of the latest of these are, "Bee Diseases in Ontario," and "Natural Swarming of Bees and how to Prevent it." These pamphlets are characterized by readable language, concise directions, pertinent illustrations and good printing. The manuals are free to residents of Ontario.

Twenty Years a Bee Inspector

The oldest foul-brood inspector, or, more exactly speaking, the one who has been longest on the job continuously, is N. E. France, of Platteville, Wis. On the 11th of August he began his 21st year. New laws just passed will give him a wider scope. These long years of continuous service speak volumes for Mr. France's faithful discharge of duty.

This same Mr. France was also General Manager of the National Beekeepers' Association for a good many years, or up to the time of its reorganization some two or three years ago, when it was placed on the basis of direct affiliation with state or other beekeepers' societies that desired to be connected with the parent body.

Honey-crop Conditions and Prices

There is not much to add to our general summary in our last issue, page 608, except to say that conditions are getting better in New York, and some beekeepers in that state will secure a good crop. Conditions in eastern Colorado show a total or partial failure. As this is an important part of the alfalfa district of the West, the shortage there may stiffen prices on alfalfa honey; but so far scattering reports show that in other portions of the Rocky Mountain districts there will probably be the usual crop of alfalfa, so that the shortage in eastern Colorado may not make much difference.

There has been an average crop in Ontario, Canada—about 55 lbs. per colony, according to the Crop Report Committee of the Ontario Beekeepers' Association.

Wisconsin and Minnesota will not come up to the yield of last year, either in comb or extracted honey. In fact, many predict that it will be only half a crop. To offset this, conditions are improving in New York and Pennsylvania.

In Ohio, conditions are widely different. In the northern part of the state, and especially the northwestern part, there will be a fair yield of clover honey. In some of the other portions of the state there will be almost a total failure.

The Weather Bureau map shows that general rains have been almost universal over the north-central portions of the United States. Some needed rains have been coming in Florida and Texas. Conditions are improving slightly in northern Texas.

So far comb honey is ruling at about the same price as last year. Extracted honey is running fully one cent lower.

Live-bee Demonstrations, Once More; One Important Point; Advertising Honey

In our editorial caution, page 610, last issue, we merely alluded to one important point when we should have said more on it, and that was, that the same bees should not be used more than twice in succession in bee-handling stunts. Ordinarily any bunch of bees, if properly manipulated, can be used in these demonstrations; but if the operation is undertaken more than once with the same bees they may cause trouble. If it is repeated four or five times in suc-

cession they may sting severely. When they are first rolled in a dishpan they are demoralized, and have no thought of stinging. It is an entirely new experience, and they are taken by surprise. They then can be handled like a bunch of kittens. But when the operation is repeated one time after another, they become less and less demoralized until they regain their complete colony spirit—the spirit of offensive and defensive. Then look out or *you* may be the one to be surprised.

Operators at county and state fairs make the mistake of handling the same bees over and over until they resist and resent all attempts to "make them good."

There will be a number of live-bee demonstrations, doubtless, this fall. As we have done more of this work, perhaps, than any one else, we wish to emphasize several points:

1. Use gentle bees to start with, and those having a queen. While this is not strictly essential, it is advisable.

2. Do not use the same bees more than twice in succession. This is *very important.*

3. Always use smoke. Do not handle the bees roughly, much less pinch or crush them. We never do. Handle them as carefully as you would your day-old baby chicks. A bruised or maimed bee may stir up the whole bunch. If only one bee stings, the smell of the poison incites the rest.

4. All movements must be very deliberate. *Take a full minute* to pick up a handful of bees. It is impossible to grab a handful of bees as you would a handful of beans. The slambang methods of a vaudeville performer will not work.

Live-bee handling at fairs or other public places means more than merely satisfying idle curiosity. Besides its educational value it is one of the most potent means of advertising honey that there is known. It draws crowds as nothing else will, and a skillful manipulator will whet the appetites of his audience for honey. One purchase of a bottle or a section of honey will mean the sale of more. It is important that the live-bee demonstrator do his work right.

The Federal Net-weight Law, and its Practical Operation after a Year of Trial; How to Avoid Getting Stung by Uncle Sam

A YEAR ago we had a good deal to say about the federal net-weight law—particularly in regard to its application to comb honey. There has been a good deal of grumbling, because many believe that its practical operation is unfair to the producer in that it compels him to eliminate the weight of the section itself from the comb honey it contains, and because it gives to the consumer as much as or more than the weight calls for on the minimum net-weight basis. But the principal complaint has been that it makes a lot of work and worry, some saying they have quit the production of comb honey, as they will not put up with these seemingly impossible conditions. As a matter of fact, many small comb-honey producers are paying no attention to it. As long as comb honey does not cross a state line the producer is safe, providing also the state in which the honey is produced has no net-weight law.

Most of the complaints relative to the law are made through ignorance of its actual provisions; and if the producer will only take time to look into the matter and then comply with the law he will find it entails no great hardship after all. When we get ourselves once adjusted to it it will result in better comb honey going to the public. The law practically compels every producer to use separators or fences and to grade his honey according to its weight. Before the law went into effect, practically none of the comb honey was properly graded. The sections (the fat and the lean ones) were mixed in an indiscriminate way in shipping-cases. The federal law, as well as many of the state laws that have been passed to conform to it, have stopped this because it is very unsafe to put out comb honey without properly grading it. While the law does not specify how comb honey shall be graded, it does say that every box must either be marked its exact net weight or the minimum net weight. As it is practically impossible to mark every section its exact weight in ounces and fractions of ounces, the only thing that is at all feasible is to grade the sections in groups according to their minimum net weights.

A few sections during a good season run around 13 ounces, exclusive of the section itself; but the great bulk of comb honey in an average season will run a minimum of 12 ounces. A large number will run a minimum of 11 ounces, and only a few 10 ounces. It is customary, therefore, to have some small spring scales and grade the sections into three groups by weight. Where there is very much honey that runs 13 ounces or more, one more grade will be provided. Each group is then cased by itself. After the sections are all in the shipping-cases, and before the covers are put on, a rubber stamp showing, say, "12 ounces net" is used to mark each section in that group. With pad in hand, strike the

pad, then the section; then the pad, and then the section. The work can be done very rapidly, and after the 12-ounce group is all marked, another rubber stamp, indicating 11 ounces net, is used, and so on to the 10-ounce stamp. In this way every section can be marked its minimum weight with a very little labor. The cases of sections are then sold by their minimum net weights. A case of 12-ounce sections should be sold for more than one holding 11 ounces.

When comb honey is properly graded in this way by weight it will usually bring more money than comb honey ungraded; and we venture to say that the beekeeper is not going to lose very much if he grades his honey as he should, and then charges a price that the market will command for such honey.

The buyers will pay more for such honey because, under the practical operation of the federal law, they know exactly the kind of honey they are paying for. Under the old *regime* it was impossible to know how the sections averaged by weight, although they could know what the gross weight was on the whole caseful of sections; but this encouraged indiscriminate mixing of the heavy bulging sections with the lean ones.

Rubber stamps carrying the various net weights generally used, as well as suitable scales, can be purchased of the dealers at a reasonable price; and no one should neglect the precaution of keeping from getting into trouble with Uncle Sam or the state. It is well to bear in mind that in some states there are in force net-weight laws. A year ago our dear uncle winked at a good many things that he will not now tolerate; and we desire to caution all comb-honey producers to be on their guard how they ship their honey.

Of course extracted honey in glass and tin come under the operation of the same laws; but in the case of the liquid product, each package can be filled to its exact weight or the weight specified on the label, which *must* show. Moreover, if the package weighs 36 ounces the label must show 2 lbs. and 4 ounces—not 36 ounces. Anything *under* a pound must show in ounces; anything over a pound must show in so many pounds and so many ounces if more than even pounds.

The Ohio Field-day Meet

THE Ohio field-day meet, which was held at the apiaries of Fred Leininger & Son and Mr. J. H. Allemier, Delphos, Ohio, August 4, was a complete success. Practically unheralded—that is, not advertised in advance—there was a good attendance—something over sixty beekeepers being present. A careful estimate was made by the state inspectors as to the number of colonies represented. Several guesses were made, but a little computation showed at least 10,000 colonies were represented, with the probability of 15,000. The season, though late, had been from fair to good, and was still in full blast in that section of the state, and, as a natural result, the beekeepers from all over northwestern Ohio came to the meet. The most of them had secured some honey, and practically all of them were in localities where more honey was in sight. In going up by train and trolley we noticed that the nearer we got to Delphos, Ohio, the more white and sweet clover were in evidence.

There were several beekeepers there who had over 400 colonies each; two or three had over 500, and a large number had 100. The season has been backward, cold, and rainy; and at a time when clover is usually in its prime the plants were held back. It was also a noticeable fact, as we looked out of the car windows, that there were certain localities where not a single head of clover could be seen in the pastures; but when we got into Allen County we began to see a decided change for the better. In fact, it seemed to be the center of a group of beekeeping territories. Ohio has never been noted for being a great honey state as compared with New York, Michigan, and Wisconsin; but if there is any portion of the state that seems to have a large number of bees and beekeepers it is the northwestern part. The inspectors thought the lack of clover in some portions of the state was due to lack of lime in the soil.

At all events, for 1915 Allen County seemed to be an ideal place for a field meet; bees worked well all day. It looked like rain, but none fell until the beekeepers began to disperse.

Through some misunderstanding or mistake no preliminary announcement of this field meet, except too late, appeared in GLEANINGS or any other bee journal. The secretary, and Mr. E. R. King, sent out postal-card announcements that brought out a good crowd.

The day and place of meeting were ideally perfect. Fred Leininger & Son and Mr. Allemier have as pretty apiaries as one can find in the state. Their bees are what we would call light leather-colored gentle Italians; and by the number of supers on the hives we would say they were hustlers. We doubt if there is another apiary in the United States that has a more uniform strain of

bees than the Leiningers have. They are queen-breeders as well as honey-producers, and as such have been making a specialty of a fine strain of gentle honey-gatherers that are uniformly marked. The bees of every colony were so near alike in their yards that it would be practically impossible to distinguish one from the other. Yes, we did find just one with different bees in the yard of Mr. Allemier, the father-in-law of Mr. Leininger. This happened to be a pick-up swarm.

The apiaries where we met were models—everything so neat, grass kept down, hives in perfect rows, and in groups of twos, threes, and fours. The hives were home-made, but as perfect as a factory product, because Mr. Leininger is a fine mechanic.

We wondered if this slicked-up appearance was a common every-day affair, or only special for this field day meet. Mr. Morris and Mr. Ames, bee-inspectors, said they had been at these yards at different times unannounced, but they had never been on the premises when there was not perfect neatness and orderly arrangement. We observed that Mr. Leininger had been breeding, not for bright yellow color, but for uniform color, three yellow bands, gentleness, and good honey-gathering qualities. He has surely secured a perfect combination. The bunch of beekeepers walked all through the yards, sitting on the hives, getting in front of the entrances, and, notwithstanding the bees were flying well that day, not a person was stung, except when Mr. Morris, one of the state inspectors, gave a live-bee demonstration. He went at them with a vengeance—poured the bees all over himself, put handfuls of them in his mouth, and then blew them on the girls. He was not stung in the mouth, but was stung once or twice on his bare arms and hands. If the Leininger strain had not been as gentle as it was, he might have come to grief; but he said he knew the bees.

We have secured a beautiful photograph of this field-day group of beekeepers, and we hope to present it to our readers in our next issue. If the meet had been advertised in several issues in advance, the attendance, doubtless, would have been very much larger.

The meet closed by a ringing resolution commending the good work done by State Bee Inspector Shaw and his deputies in treating and eradicating foul brood in Ohio. This was passed unanimously. Another resolution of thanks was put through with a shout, expressing the thanks of the beekeepers for the courtesy shown them by the Leiningers and by Mr. Allemier.

In Memoriam of Mrs. H. G. Acklin

In our issue for June 15, page 477, we spoke of the sudden death of Mrs. H. G. Acklin, a lady well known to the beekeeping interests of Wisconsin, Minnesota, southern California, and later of central California. She was a native of New York, but removed with her parents to Wisconsin where she fitted herself for teaching, and later on taught for several years; but the honeybee had always been an object of interest to her, and she fully resolved to take up bees when opportunity offered, and it came. In 1884 she went to St. Paul, Minn., where she met Mr. J. C. Acklin. In 1885 they were married. Fortunately some bees were on the lot where they were building a home, and thus began their experience with bees.

Early in 1893 they began handling beekeepers' supplies, and for fifteen years were prominently connected with the bee business and in the rearing of queen-bees. Mr. Acklin devoted himself to the supply business while Mrs. Acklin gave her attention to the bees and to the rearing of queens. She took a very active part in the bee conventions, for her enthusiasm knew no bounds.



MRS. H. G. ACKLIN

On page 870, 1906, we recorded the fact of Mr. Acklin's sudden death, leaving Mrs. Acklin with health not good, and a little daughter, Ethel. Mrs. Acklin continued in the business for a couple of years; but ill health compelled her to make a change of climate and also a change of occupation. In 1908 she went to California, where she bought an orange grove in Glendora, about 25 miles from Los Angeles. In the mean time she did not wholly lose her interest in bees. She kept a few and attended the bee

conventions, and edited the California department in GLEANINGS; and when the A. I. Root Co. established a branch office in San Francisco she was given charge of it by our Mr. Boyden, who established it. She continued as manager up to the time of her death, which occurred May 30, 1915.

It was our privilege to visit Mrs. Acklin in her home at Oakland in our recent trip to California. We came to know more and more of her sterling worth, not only as a business woman and manager of our branch office at San Francisco, but as a careful mother of an attractive daughter of refinement and education, and a beekeeper of considerable experience. In fact, we doubt if there is another young woman in the country who knows the theory and practice of the keeping of bees better than Ethel Acklin, or, to speak more exactly, Mrs. Ethel Calvert.

Perhaps at this point it might not be inappropriate to speak of a little romance that ended very happily. Howard R. Calvert, son of J. T. Calvert, treasurer of the A. I. Root Co., last winter was looking after the A. I. Root Company's exhibits, both at San Diego and also at San Francisco expositions. It was during one of the visits to the latter city that he became acquainted with Miss Acklin. This was some time before the death of her mother. Howard showed a wonderful adaptability in the matter of helping Ethel to wash dishes. He said he used to help his mother in the same way, but we never saw him. Matters took their usual course. Before we left California the young man announced their engagement. He hoped we would "fix it up" with mother and father, and of course we did. It is needless to say that the job was easy, for Ethel and her parents had long been regarded as a part of the Root establishment. There is a "whole lot more" we might tell of the courtship of the young people, but what's the use? It's the same old story—an ever lingering dream to some of us who have been there.

Very soon sorrow came into the heart of the young woman. Her mother kept up with her work until within a week of her death, and then passed away. The daughter bore up bravely, notwithstanding her mother was the last surviving relative. Shortly after, the young people came east and were married June 26 at the home of the groom's parents.

They are now in charge of the San Francisco office, where both are taking hold of life's realities as well as of an active business career, but Ethel is the beeman of the establishment.

Sandpaper or a Knife for Cleaning or Scraping Sections; a Lively Discussion between Two Authorities, both of whom have Scraped many Thousands of Sections

SOMETHING like two months ago we sent to Dr. C. C. Miller a new scraping-knife—one that we thought would do good work in scraping sections. We said it could be secured at a very low price, and we wondered if it would not make a good tool for beekeepers. In reply to this, Dr. Miller wrote:

> Your inquiry concerning a knife for scraping sections leads me to say that "in this locality" a scraping-knife is a matter of little interest. Years ago we began using sandpaper in connection with the knife, gradually using the knife less and the sandpaper more; and a final suggestion from Allen Latham threw the knife almost out of use. The sections are taken from the T super, wedged up in a frame that is a little larger than the super and a little shallower; the roughest part of the propolis is taken off the bottoms of the sections with a scraper, but the chief part of the cleaning is done with No. 2 sandpaper. Then the whole thing is turned over, and the tops are cleaned the same way. As formerly done, the knife did all the rest, each individual section having its edges scraped, and whatever was necessary on any of the four sides. But when the Allen Latham suggestion came into play, the knife was discarded entirely for this individual section work, and it is all done with sandpaper. A sheet of sandpaper lies on the table, the sand up, and on this the section is laid flat. A few motions clean all four edges, doinig the work in one-fourth the time the knife would do it, and perhaps doing it better. Any cleaning needed on the sides is done the same way. Of course, it uses up sandpaper, but, as Mr. Latham said, "There's plenty of sandpaper."
>
> If cleaning must be done when it is very warm, then the knife has its innings, for to do good work with sandpaper it should be cool enough for the propolis to incline to brittleness. But generally there are more or less cool days, and one can take advantage of cool mornings.
>
> We like the sandpaper ever so much better than the knife. Besides the important saving of time, the work is done more thoroughly. The sandpaper doesn't skip places as a knife can. Those, however, who have bulging sections produced without separators will need a knife for scraping edges. Possibly there might be some trouble with plain sections. C. C. MILLER.

Dr. Miller's allusion to sandpaper immediately interested us. We remembered that it had been mentioned before, but our experience with it had not been entirely satisfactory. Our sections of honey coming in by the carload are scraped by us in the good old-fashioned way with a knife. Fearing we might have condemned sandpaper too hastily we submitted Dr. Miller's letter to the foreman of our honey department, Mr. Julius F. Gayer, and here is what he wrote:

> This plan of sanding sections might be faster, but we don't like the work it does. It fills the paper very rapidly. If a drop of honey gets on the paper

it is dragged all over the outside of the section the next time you pass over it. There is great danger of racking the sections and getting a leaker.

It also throws dust into the open cells of honey. If the comb bulges, you of course get one that leaks, besides daubing up the sandpaper. We have been using sandpaper for about four years, but on an iron wheel which does the work. J. E. GAYER.

This note was intended only for our own consideration, and not for the public; but as it brings in some questions based on long experience in handling carloads and carloads of honey that has to be regraded and scraped, we give it for what it is worth. This we also submitted to Dr. Miller, and this in turn brought back another letter from him as follows:

Dear Ernest:—Yours of June 22 hardly needs reply beyond saying that you have sized up the matter exactly. What Mr. Gayer says is just what might be expected with sandpaper flying on a wheel at such a rate that it "cuts so rapidly that it sometimes wears off the edge of the section so that the sandpaper itself touches the comb." We have no wheel except Miss Wilson's very efficient pair of hands. As I have no personal experience in the work, I took up Mr. Gayer's objections with Miss Wilson, point by point, and will try to give her replies.

1. *It fills the paper very rapidly.*

"So it does; but, as Allen Latham says, there's plenty of sandpaper, and the time saved pays several times for the extra sandpaper."

2. *If a drop of honey gets on your paper, it is dragged all over the outside of the section the next time you pass over it.*

"Sometimes it happens that honey is daubed on the wood of a section, in which case it is wiped clean before sanding. I don't remember ever to have had a drop of honey fall on the paper from a section. If it did it seems I should have noticed if any trouble came from it; but I have no recollection of any such trouble. Could the rapid revolution have anything to do with it?"

3. *It also throws dust into the open cells of honey.*

"Not here. Dust doesn't fall uphill. May be it might with the blowing of rapid motion."

4. *If honey is bulgy, you of course get a leaker, besides daubing up the sandpaper.*

"That's true. We rarely have bulging—very rarely; and when it happens, sandpaper cannot be used for the edges—only the sides."

5. *Great danger of racking the section and getting it to leak.*

"Not as much danger of racking the section as when cleaning with a knife. It might be different with very rapid motion. I don't remember ever racking any with all I've ever done."

It seems pretty clear that the hands have it over the power sand-wheel. Fortunately, hands are also more plentiful than power sand-wheels.

C. C. MILLER.

This was again submitted to our Mr. Gayer, who replies as follows. This note also he intended only for our private consideration.

Our remarks were based on sanding the sections just as Dr. Miller suggested in his letter. We did not use the wheel, but used a sandpaper tacked on the table as he described.

We don't mean honey dropping from the cells, but inside of the section, which probably leaked out in transit.

Remember we are at the other end of the shipping line, with different conditions. There is some difference between honey taken direct from the hive and receiving it after having been shipped a great distance.

Dust does rise, especially on plain sections, but not so much on beeway sections. J. E. GAYER.

As we did not seem to be getting anywhere, we told Mr. Gayer we should like to try out the sandpaper ourselves. Our first tests were decidedly satisfactory; but still we noticed that the edges of the sections were roughened up somewhat (more so than with the knife) and that fine dust would be deposited on the surface of the comb honey to a slight extent, also that the paper filled up with the glue. We came to the conclusion that sometimes the sandpaper was better, and sometimes the knife.

If Dr. Miller (or more exactly Miss Wilson who does the cleaning) were to try to sandpaper the sections that come to Medina from different localities of the United States, he (or she) might find it wanting, as does Mr. Gayer. Much depends on the temperature of the room and the general character of the propolis, for propolis, as is well known, varies according to the locality from which the bees gather it. That is only another way of saying that in some places the scraping-knife will work better than the sandpaper. At all events, this is the season for trying the scraping-knife and the sandpaper.

It might be well to say that our comb honey is largely in plain sections. The four edges of this scrape easier with a knife than the two edges and the two insets of a beeway section. On the other hand the last-named section might handle easier on sand paper.

There is one more point that must be considered besides temperature and locality; and that is the exact shape and edge of the knife as well as the coarseness or fineness of the sandpaper. In any discussion relative to sandpaper, we hope our readers will be sure to mention what number of paper (the degree of coarseness) gives the best results. If you are talking about knives, tell us whether it is a kitchen knife with a thin blade, or a caseknife with a stiff blade, or a stocky butcher-knife. Again, is the edge sharp, suitable for paring potatoes? or is it ground square so that the two right-angled edges of the knife do the work? We are liable to get all mixed up in our discussion unless we know what the other man is talking about, and the writer, therefore, cannot be too precise.

We shall be glad to get reports from those who have been trying both side by side, and the decision regarding the relative merits of the two.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



As further reply to "A subscriber," p. 554, I may say that I had virgins cross the ocean before mating, and they did excellent work as queens.

On page 591 it is estimated that four men can by hand clean ten cases of honey in an hour. Those four men ought to take lessons of a woman I know of in this locality.

Frank A. Gray sends samples of white clover (one of them looks like alsike) and a yellow kind called Canada clover, and wants to know if he is right in counting the yellow much inferior to the white. Entirely right, I think. Except yellow sweet clover, I know of no yellow clover of value for honey.

The *British Bee Journal*, p. 229, copies a clipping which says that in that country one firm uses an average of 40 tons of honey per month in the manufacture of a certain cough mixture. Even counting the short tons of 2000 pounds, that means 2630 pounds a day, or nearly a million pounds a year. Some honey.

C. V. Conover, that's a bright-looking scheme of yours to save foundation, p. 584, but unless you use excluders I should expect the queens to go up and lay in the drone comb sure to be found in some of those centers. Then for every ¼ cent you save on foundation I should expect you to lose ½ cent in the amount of honey obtained.

B. C. Auten, you've no consideration for my comfort—made me get up off the lounge where I was comfortably reading Gleanings to go and smell and taste the water in the bees' cork-chip drinking-tub. You say, p. 583, it "will get foul in a few days." Mine had stood the whole season, but I found not the slightest foulness. Didn't you forget to put salt in yours?

E. F. Atwater says, p. 547, that not one queen in a hundred will go up to lay in sections if bees build drone comb there. But they do, friend Atwater, here. If my bees have a chance to build drone comb in a section, it is the common thing to find such cells left empty for a time, awaiting the coming of the queen, and about 25 queens in a hundred accept the hint. You speak of economizing with a half-sheet or V starter. Do you believe it's *real* economy to use anything less than full sheets?

Wet. That characterizes the season of 1915 in this locality. At the end of July, although clover is abundant, bees have been kept indoors by the weather for four days, and it's been somewhat the same throughout the month. However, there may be no loss in the long run. The extreme wet continues the clover in luxuriant growth, and the prospect for a continuance of bloom looks just as bright now as a month ago.

Later, August 3. Still raining, and clover still growing. [See editorial.—Ed.]

J. E. Hand says, p. 489, that 14 frames is the limit of practical expansion. That would probably mean that there would be 12 or 13 frames of brood. Not many queens reach that. But some go beyond it, and possibly a good many more might if they had the chance. But the question arises, Do the bees have a fair chance? Generation after generation they are confined much within their capacity, and does not this have a tendency to lessen that capacity? [You do not touch on the great question raised by our friend Mr. Hand, whether or not it is advisable to have one large brood-chamber or a multiple of two or more of medium size, and tier up in order to get the necessary capacity. Your opinion on the proposition would be interesting.—Ed.]

"Breed from the best" has been my slogan for some time. It's the one thing I'd especially like to leave as a sort of legacy for beginners. So I'm grateful to J. E. Crane and E. S. Miles for that closing paragraph, p. 483. They're dead right in saying bees vary, and that their varying traits are transmissible, and so "breed from the best." [We should like to know what you mean by "breeding from the best." Said Vernon Burt to us the other day, "I like gentle bees; but I have about made up my mind that if I want honey I shall have to take bees that are a little irritable."

Now, doctor, what is the first thing you look for in the "best"—the ability to pile up honey in the supers, or a combination of all good qualities, including gentleness? In other words, are you willing to put up with irritability and general all-around meanness in the way of robbing, bad color, and poor markings for the sake of getting stock that will winter well and secure a crop of honey? The two last qualities go hand in hand. Bees that die in winter or are weak in the spring can't get honey later. In short, doctor, tell us what you mean by "breeding from the best."—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



Sixty pounds of extracted honey to the can. Yes, that is just right. Will producers please remember?

* * *

That "Amateur" may be an amateur at beekeeping, but in describing "the beekeeper who is never stung" he is more than an amateur. He is an artist—page 506, June 15.

* * *

I was greatly interested in the mammoth leaves of sweet clover, page 537, July 1. May its blossoms be proportionately large, with every one dripping with the choicest nectar.

* * *

As the season for fairs comes around it should be remembered that there is nothing that attracts bees so quickly as overripe pears and bananas. If these are kept protected from bees it is not difficult to keep them from confectionery.

* * *

F. C. Chadwick quotes A. D. Wolfe as saying that "if a stand or two of bees is kept in each orchard, the fruit will be larger, better-flavored, better-colored, more abundant, and of better keeping quality." This is giving the bees a great deal of credit for their work.

* * *

I may have spoken of it before, but I will mention again that I find many trying to cure American foul brood by caging the queens or making them queenless—in fact, by European-foul-brood methods. Don't do it. It is no use. They are sure to come down again with the disease.

* * *

I was told to-day how one farmer learned that stock would eat sweet clover. He cut the pesky stuff at the roadside; and after leaving it out for weeks in all sorts of weather he drew it to his barnyard for stock to trample on and make manure. Strange to say, his cattle left his carefully cured hay and ate the badly weathered sweet clover instead. Let us take courage. "The world do move."

* * *

Do we sing as we work? It is interesting to note that the birds sing the most when they work the hardest during the season of nest-building and the rearing of their young. If we cannot sing we may at least read the verses in "The Dixie Bee," for Grace Allen seems to bubble over with song like the birds. Glad we are to learn more of her beekeeping experiences through her department.

* * *

I have been much interested in watching bees working on the buds of a clump of peonies near my door. The buds are almost the exact color of the leaves, and, more, the clump is hidden by the house on one side and lilacs on another, yet the bees have no difficulty in finding them. From this I infer that the sense of smell plays quite as important a part in bees finding nectar as the sense of sight.

* * *

In bulletin No. 151 of the South Dakota Experiment Station we find a letter from R. A. Morgan stating that he would not hesitate to give $25 per acre as rental for the exclusive right of his bees to pasture on each acre of white sweet clover to be grown within 160 rods of his apiary, this offer to be good up to 100 acres. He estimates that the bees would gather from each acre $100 worth of honey, wax, and pollen that would be valuable to the apiarist.

* * *

Were there ever two seasons alike? I have many times thought that a certain season would prove to be like some other season I have known in the past fifty or sixty years; but somehow they all turn out differently. The present season is a curiosity. We had a heavy rain about the 25th of February, ending in several inches of snow, when the rain seemed to be over for the season. Scarcely an inch of water fell from that time till June 11, when we had a very good fall with occasional rains until June 30, when it was again very dry. Then it began to rain, and kept it up for eighteen hours. There was plenty of clover on the ground in early spring, but it looked as though it would all dry up; but the ground was so mellow that the moisture came up from below, and clover began to bloom earlier than usual. After the rains began it was so cold and windy that bees could do little. During the last half of May there were many frosty mornings, and even into June, some of them severe. Bees have been whipped out by cold winds and hard work. Not until June 28 did we have good honey weather, and but little surplus has been secured. Now, Aug. 1, the ground is again soaked, and we may yet secure a fair crop of honey. There have been very few swarms up to this time.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



While the Texas honey crop will be somewhat short as a whole, some beekeepers have made very fair crops. These are scattered considerably, however, over the state. While the crop is short there was quite a good deal of honey, with a good demand for it.

* * *

Grassy apiaries are exceedingly dangerous these dry seasons on account of destruction by fire. Just a little spark from the smoker may mean the end of the entire apiary of some beekeepers I have visited, where the grass and weeds were knee-high and as dry as powder. Clean them up!

* * *

"Don't give up the ship" is mighty good advice to those who may become discouraged because they did not make a good crop this year. Be kind to your bees and do not neglect feeding them if it becomes necessary. By all means save them, as they may reward you thrice over for your kindness next year.

* * *

"Bulk comb honey" and "chunk honey" are two different things, yet some of our friends of the North and East frequently make the mistake of referring to our bulk comb honey as "chunk honey." Get away from that! You may seem to think it all right to do so, but we don't. We think it betrays a good deal of ignorance on the part of the person so using the right and the wrong names of this thing, and we hate to think that. It is, therefore, better to use the names correctly.

* * *

"HONEY IN THE ICE-BOX."

The editor calls attention to the foolish habit which some merchants have of placing honey in the ice-box. I have given many instructions to my customers in time gone by, along exactly the same line. Of late, however, my instructions have been just entirely opposite. I'll tell you why. I made a discovery by chance. A tumbler of honey found its way from the table into the ice-box with the other things by mistake. It had just come from the ice-box on to the table when I ate some of it with my hot cakes. What a difference between it and the usual thinner honey as we find it, and especially during warm weather!

Since then my instructions to customers have been to place the table dish in the refrigerator if they wish to enjoy improvement in already good honey for table use. Since these instructions were given, the consumption is greater because they enjoy the nice, thick, cool honey far better than they would if it were in the original state. And I do not see that any harm can come from such procedure. Of course, it would be wrong to place the entire vessel containing a larger quantity of honey in the ice-box. [Our editorial referred to was aimed against the storing of honey in the *dealer's* ice-box; and comb honey, of course, should never be placed in a refrigerator, whether in the home or in the store.—ED.]

* * *

BEEKEEPERS' FIELD MEETINGS.

I have been calling the attention of beekeepers, especially of Texas, to the great importance of holding field meetings and beekeepers' picnics from time to time. The Bexar County Beekeepers' Association recently held such a picnic, and it was indeed a most successful venture. This association is one of the livest organizations in this state. It includes the beekeepers of the San Antonio district, as this city is the county seat of Bexar County. There is not only a good membership, but the most of the members are real live wires.

The picnic was held at the apiary of Mr. A. P. Heinen, at Southton Park, about ten miles out of San Antonio. A grove near the San Antonio River banks served splendidly for such an outing. With a bountiful supply of eatables and refreshments, and a regular feast of bee-lore, there was plenty of real enjoyment for young and old, for the ladies as well as the men folks. There were visitors from seven counties.

A short address by the president, Lewis Maverick, some pertinent remarks on the subject of bee diseases by M. M. Faust, of Floresville, followed by a talk on co-operation and organization by myself, was the program in the afternoon. All day there was free discussion and demonstration. Besides the regular hive equipment in its completeness in Mr. Heinen's apiary, E. G. LeStourgeon, the secretary of the association, had provided a great variety of hives and other beekeepers' supplies and equipment for exhibition. A person in charge of these supplies was kept busy all day at the various occupations of hive-nailing, putting in foundation, and the dozen and one other things that can be done to keep a crowd of lookers-on busy.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The powers of Europe went crazy one year ago to-day, July 29, and the end is not yet in sight. The conditions of finances will not be normal for many years to come, and the bee industry will probably be one of the sufferers.

* * *

There is a movement on foot to market honey through a local orange-distributing agency. A splendid idea indeed! The vast distributing business of this agency should be of immense benefit to the producer. Now, if the beekeepers will pool their interests as the orange men do, and will be willing to take a uniform price for their honey according to the grade, we shall have made a great step forward. Grading will be a difficult problem. Blending should be a feature of the business that a uniform grade could be offered to the buyers, and not to exceed four grades should be the aim.

* * *

Among my visitors for the month was Mr. S. M. Boschnogel, of Loudersburg, Pa. Mr. Boschnogel has made very extensive travels since leaving home the first week in June. He traveled east through the New England States, back through New York, then into Canada, and as far west in the Dominion as Calgary, thence south into Montana, Wyoming, Idaho, Nevada, Utah, and to San Francisco, San Diego, and Redlands. He had covered over 7000 miles when here, 400 of which he had walked that he might see more and study conditions better. He will add several thousand miles to his trip before he reaches home next fall, and will have visited many prominent beekeepers and most of the scenic places in the United States.

* * *

During July I spent four days in the higher San Bernardino Mountains, and, as usual, kept my eye open for bees. I found them quite numerous at Bluff Lake, a resort over 7500 feet above sea-level. There were numerous blooming flowers and shrubs for them to work on; but what caused me the greatest wonder was the immense amount of honey-dew on the fir-trees. The leaves were shining like crystals with the honey-dew that has dried and crystallized on them. The bees seemed to be able to work it only in the morning, to any great extent. There was fifteen feet of snow at this point last winter, some remaining until the first of June, so I am wondering what the real length of the season is at that altitude. Frost is known to come very early. In fact, there was a heavy frost one night while I was there. It seems to me that three months would be about the length of a season to expect there.

* * *

In the issue for Jan. 1, 1912, is an article by Arthur C. Miller entitled, "A few random notes on the way bees 'make' honey." At the time I read this article by Mr. Miller I could not bring myself to believe some of his contentions, but resolved to give them some careful consideration and study. I have had the above-mentioned issue of GLEANINGS close at hand since that time for reference to his article. Mr. Miller says that a bee returning does not rush for a cell in which to store its nectar, but, on the contrary, she spends a seemingly needless amount of time wandering about and inspecting cells. I have seen nothing in the past three years that gives me any foundation for believing that Mr. Miller is correct.

Quoting again, "When the bee has emptied her sac she backs out of the cell, wipes off her face, antennæ, and tongue, stretches and plumes herself, and, likely as not, crawls into some cell or hangs in some quiet corner for a nap. Thus she may stay for a few minutes or for half a day." The above is the hardest of all for me to believe, and I regret that I must say it seems to me to be without sufficient foundation. I have made some experiments with field bees, and the length of time it has required them to return to baits placed for the express purpose of timing them. The tests have been so conducted that there could be no reasonable doubt as to getting the exact time it took a bee to get its load and return for the second and third. In none of these tests have I found any disposition on the part of the bee to loaf on the job as Mr. Miller suggests.

I will admit that I have not spent half a day watching a single bee to see what its actions are in the hive for that length of time—whether it crawls in a cell or hangs up in a corner for half a day. I do not believe that a single bee can be kept under observation for that length of time if the weather is sufficiently warm for them to move around freely, and the bee is in active condition. There are many things in the entire article that to me savor of speculation.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



USING TWO-STORY BROOD-CHAMBERS

"In using brood-chambers two stories high, which is better—the eight or ten frame Langstroth hive? I am told that, for section honey, two-story eight-frame hives, or sixteen frames, are best until the time to put the supers on; then one story is to be taken off, reducing them to one story or eight frames. In this locality the honey harvest opens and supers should be put on somewhere about June 5, and up to that time the queen rarely occupies or fills more than eight frames with brood. Under such circumstances would it be necessary to put on the second story?"

If a single story gives all the room the queen will occupy, and if no more room is needed, then there can hardly be any advantage in giving a second story so far as the part of the queen is concerned. But no one can be perfectly sure in these matters if he has never tried it. You can hardly be sure that none of your queens will occupy more than eight frames until you give them a chance. Bees do not freely use either of the two outside combs for brood, but use them mostly for honey and pollen. If brood is found in either (and it may be found in both) they are somewhat crowded for brood-room. If you find eight combs occupied with brood in an eight-frame hive, the probability is that more than eight frames would be used if the bees had two stories. A strong colony in two stories may have from ten to twelve frames of brood. Some colonies do not need the second story, even with an eight-frame hive, but many more do. If you practice using two stories you will find a good many more of your colonies needing them than you thought. Giving all the room needed results in stronger colonies.

But why be confined to an eight-frame hive? With a ten-frame hive a good queen will give eight frames of brood and some brood in the two outside combs, as much usually as is found in the two outside combs of the narrower hive. This will satisfy most of the queens you are likely to have, and put a larger force of bees in the fields at the time of your surplus flow of nectar. If you wish to contract so as to throw more of the bees and honey into the sections, put a dummy in place of each outside comb at the opening of the surplus flow. This will answer the same purpose as reducing the two-story eight-frame hive to a one-story.

In order to secure honey we must have bees. As a rule, the more bees the more honey. If a queen has filled all the available cells in eight frames, two more additional frames will give more bees, and, consequently, more honey. Then if, at the beginning of our main nectar flow, we prefer honey stored in the sections instead of the two outside combs, let two dummies take the place of these, and we are brought back to an eight-frame hive again with approximately one-fourth more laborers to work in the nectar harvest than if we had used only an eight-frame hive all the while.

Now as to the two stories. A queen that has eight combs well filled with brood just at the approach of the honey harvest will not fill eight more as completely as another queen would have if she had had them early in the spring. What extra brood she does put in the upper story will hardly give bees that will labor to advantage in that harvest. Bees in their prime as laborers when the honey harvest is at its prime are the ones which make the profit.

The profitable keeping of bees does not depend so much upon having each queen occupied to her full capacity as it does in having the combs and hives occupied to their full capacity, and that at just the time when the flowers which generally give surplus honey are in bloom. Taking advantage of this thought, and by using the ten-frame hive as a single story up to within twenty days of the opening of the surplus bloom, and then putting a queen-excluder on top, and on top of this another ten-frame hive filled with good worker combs, a two-story hive can be made a paying investment. Swarming can be kept back till the lower hive is nearly filled solid with brood, and quite a start in honey made in the upper hive by way of storing honey, which start accustoms the bees to storing above.

As the surplus bloom arrives, reverse the hives, put a super of sections between, and see that the queen is in the now lower hive with the queen-excluder under the super. The bees will remove the honey that has lately been stored there to give place for the eggs from the queen, and this honey, together from that coming from the fields, will go into the sections almost at once. Ten days later, shake the bees from seven of the combs now in the upper story, at the entrance below, and set the upper hive on a new stand, thus getting a new colony. By adding supers as needed, success is yours in good seasons.

GENERAL CORRESPONDENCE

THE DEVELOPMENT OF THE HOME HONEY MARKET

BY L. L. BURR

That each individual honey-producer should always make an effort to develop his local market goes without saying. Yet it is also a well-known fact that many of the large producers make no effort whatever to increase home consumption. They say they are honey-producers, not salesmen. Such an attitude is all right when prices are good. At the present time, however, all honey-producers should be cognizant of the fact that a condition exists that did not exist in years past—namely, the war in Europe.

As a result of the war a condition exists which will continue to exist as long as the war lasts, and perhaps for a period following. The result is that a large proportion of the honey of the West Indies and of Central America that in the past was sent to Europe will now find its way to the United States. From this there can be but one result—that is, lower prices; and it behooves the producers of honey in this country to develop their home markets to the utmost if they desire to secure the best results in disposing of their honey crop, for the large cities are going to be flooded, and the prices there cannot but suffer.

In the following, what I have to say on the subject of selling honey is from experience; and perhaps I may have something to tell from that experience which will be of assistance to others.

I do not remember the first honey I sold. I did it all through my boyhood, and enjoyed the work. In selling honey, as in every other business, there are certain ethics that it always pays to observe if one desires to build up a substantial business; and according to my idea they are as follows:

1. If you are going to sell to the retailer, do not peddle honey to the housewife in the same locality. I might here state that, as to the matter of peddling, I am innocent. I have never sold to any person but the merchant, and so know nothing from personal experience about that art. I do know from observation that nothing makes a small-town merchant so sore as to have a man sell him some product, and then go out and peddle to that same merchant's customers. Where that is done, and the merchant becomes aware of the fact, there is but one result; and that is, the merchant will tell such a seller that he will see him in Hades, and wish him all the tortures that the property room contains, before he will purchase from him a second time.

2. If it is a small country town with but a few stores, pick out the most progressive merchant and inform him that, if he agrees to handle your honey, you agree to furnish to him alone, and that you will not sell to any of the other merchants. From my experience this is far more satisfactory than trying to deal with all the storekeepers, as the one would sell practically as much honey as all of them put together. Should the town be large, pick out one merchant in each neighborhood; and in each case be sure to let the merchant you deal with know that you are not going to sell to some other merchant across the street or around the corner.

WOULD YOU?

BY GRACE ALLEN

Oh! who would live in cities
When the blue is in the sky,
And walk resounding pavements
When the grass is thick and high?
And who through crowds would jostle
When the fields so broad are spread,
And gaze on smoke-drab buildings
When the rose is blooming red?
And who would brave the noises
Of the city's rushing roar,
When gentle bees are humming
As they never hummed before?
Oh who would live in cities
When the country calls so true,
Or compromise in suburbs?
I would not! (But I do!)

3. Make your prices standard in each town. Don't sell to one merchant for one price, and then later sell to some other merchant in the same town for less money. If you do you are breeding trouble. There are merchants who want only the very finest grade of honey, no matter what the price; yet it is well, when furnishing honey to such merchants, to let them know what your prices are for other grades, and explain the difference in grades, so that they can distinguish them themselves if possible; in other words, treat them in such a way that they cannot help knowing that you are dealing with them on the square.

4. The sections that can be seen through the glass should be a fair indication of the entire contents of the case. When a mer-

chant finds out that your goods are packed that way, you are never going to be bothered by having him go through the case to see just what your grade of honey is.

The foregoing are ethics that I always observed in the days when I sold honey. It may be possible that conditions have changed since then in regard to No. 2, and it might not always be advisable to follow it.

Simply observing business ethics, however, will not of itself sell honey to a merchant who is doubtful as to whether honey is a product that he can sell, or to one who is prejudiced against handling honey; but such ethics will assist in retaining customers after you have once secured them. As we all know, there are all kinds of people who are storekeepers, the same as in other kinds of business, and the same line of talk or procedure that will sell honey to one grocer will not work with all. The following, however, are a few stock suggestions:

With the merchant who says that he has no call for honey, and does not think that he can sell it, quite often it is advisable not to waste words with him trying to get him to part with some good cash; but make the proposition that you desire to leave with him one or two twenty-four-section packing-cases, with the understanding that he is to set it on the counter in plain view of his customers; that you will return in about thirty days; and if in that time he is of the same opinion you will take what is left on his hands, and allow him the regular profits on that which he sold.

There is always the merchant who will tell you that honey is sticky stuff to handle, and that he does not want it in his store for that reason. To them explain that your honey is placed in non-drip cases, and that the case can be placed anywhere with no danger of leaking. It is also well to point out to all storekeepers to whom you sell honey that there is a top and bottom to sections, and that a section should always be placed with the top side up.

There is a great deal written these days about the "psychology of salesmanship," whatever that may mean. I knew nothing of psychology in the days when I sold honey, which was from the time I was some twelve or fourteen years old until I was eighteen years of age; but I did find that, to sell honey, one must have confidence in himself. Be ready to talk bees at all times to any storekeeper, his clerks, customers, or any other person willing to listen. Always let it be known that you thoroughly understand bees and the production of honey, the natural history of the bee, and the history of honey production. A man, to sell any article successfully, has to understand thoroughly the particular article he is selling; and there is so reason why the average beekeeper who has enough nerve and stamina to produce honey should not, with a little practice and experience, develop into a bettel honey-salesman than the average professional salesman who knows nothing of the practical side of bees and honey.

SELLING HONEY FROM HOUSE TO HOUSE

BY WALTER S. POUDER

I am now in position where I have nothing to sell, and I feel that I can talk to my beekeeping friends without any suggestion of free advertising. Much is being said about overproduction in some localities, while a shortage exists in other places, and that this situation should be equalized and prices advanced. I believe the situation can be solved; but up to this date it does not seem to be a practical problem for organizations.

A man who has traveled extensively in Indiana as a bee inspector submits the following figures. He estimates that our 92 counties contain about 2000* colonies each, which would mean 184,000 colonies in the state, and that on an average season each colony would produce 30 pounds of surplus honey. These figures may be a little inaccurate either way, and yet one can perceive that an immense amount of honey is produced in this state. The point that I now wish to bring out is that Indiana does not produce enough honey for state consumption, and I do wish I could tell how many carloads of honey are shipped to this state from the North and West every year, all of which finds a ready sale. I know that some of our neighboring states are in the same line with Indiana.

Honey is one of our greatest luxuries, and as a health food not one word has ever been said against it. Yet thousands of families do not provide it on their table as often as once a year. Beekeepers have traveled a rugged road, especially before

*Striking an average is difficult, but from another source we have figures that seem to make the average for the state a little less than 1000 colonies per county.—ED.]

our pure-food laws were enforced, and now what seems to be sought mostly is better distribution. I can say without boasting that I have had extensive dealings for many years as a dealer in honey, and many interesting observations have come before me.

For a number of years I have been deeply interested in supplying men with honey that they sell from house to house. Some have failed, while many have made it a decided success, and I have tried to analyze the situation. I find that the man best suited for this work is he who has an apiary, even though it may be small, because he can talk about bees in an intelligent manner, and this goes far in making sales. He can begin his work by disposing of his own product, and then secure large shipments from localities that are oversupplied.

Among all the different features that are necessary to success is to keep up the quality. Quality means that one can go over the same route and find an increased list of patrons; and when honey of quality is placed on the table, visiting friends will make inquiry as to where so fine a brand of honey was secured. I personally know of several who have established routes on this plan that earn for them as much as five to seven dollars per day. Those who are most successful are pushing the sale of extracted honey; and that they keep up the price seems to help advertise their business.

I have watched two men of equal ability start out, one selling at 15 cents per pound, while the other sells at 20 cents; and the 20-cent man invariably secures the most business per day. Seemingly the higher price carries confidence with it. With some there is a tendency to increase their profits by putting out inferior honey. These are the men who fail. Inferior honey will never promote business. I have seen it so inferior that it even contained foreign substances; and while a few sales may be made, those securing such honey are likely to resolve that they never again want any more honey.

The work described can be made very pleasant, and no deceptions are required. The successful ones carry a sample, call at the kitchen door, and insist on the housewife tasting it. One of these men disguised himself as a farmer, wearing boots with his trousers tucked inside, and began by telling a story about "just drove in from Southport; and while my wife is doing a little shopping I thought I would try to sell some honey, as my bees did quite well this year." He disposed of a good deal of honey, but did not continue very long. He is the same man who asked for a drink of water in a kitchen, and then asked the landlady how to turn the faucet to get city water; and after she showed him he remarked, "How nice! I supposed you had to work a pump-handle like we do at home!" I think he overdid the thing; but the lady surely thought of him as an honest farmer.

Another successful salesman, whom I was supplying, solicited near my home, calling on my immediate neighbors. My neighbor told him that she used honey, but had been getting her supply from Pouder's honey-store. He replied, "I know Mr. Pouder, and he sells good honey; but I wish you would just taste this sample." She tasted; and, lookingly at her inquiringly, he remarked, "Now, lady, I want to ask if you can get honey like that at Pouder's honey-store." She bought! We have men unemployed, and here are opportunities going to seed. If pushed, there would be an increased demand at higher prices.

I have had much personal experience in disposing of bottled honey to the retail grocery and drug trade. This was in the days when we had no pure-food laws, and I found it an uphill business, as I had to compete with jars containing a strip of comb honey, the jars filled with glucose. They really had an attractive look, and did not granulate on the shelves. I could not successfully compete with such goods; and at best my margins were small, wagon delivery was an expense, accounts were opened up, and collections very difficult. I would have abandoned this branch of the business earlier had I not looked forward to drifting my business to wholesale houses. I felt, however, that I could not interest the wholesaler till I had created a demand at the retail stores, which proved to be true.

During one season I sent a solicitor over the state who brought considerable business, but could not be called a pronounced success. Merchants hesitate to order goods in small lots, and prefer to secure such goods as honey with other larger shipments, thus reducing transportation charges to a minimum. Advertising Pouder's honey in newspapers has always been a failure with me; but getting bottled goods in wholesale houses is the best method that I have ever learned for distributing this class of goods. Supplying their traveling representatives liberally with free samples at times when business seems dull gives it an impetus. Some of my best business in this line resulted by using labels from the wholesale houses instead of my own.

I sometimes wonder if we are as grateful as we ought to be for the pure-food laws that we have to-day. I used to return from

a soliciting-trip discouraged, for it seemed to me that many of my clients actually seemed to prefer the adulterated goods, and even on my best days my margins were exceedingly small. I recall one instance where a druggist greeted me cordially, looked at my sample, and remarked, "I have a recipe for making honey just like that; but if you will put something in it to give it a more amber color it will look still more like honey." I kept back my fighting blood with much effort, and later he became one of my regular patrons.

Indianapolis, Ind.

AROUSING INTEREST WITH A TRAVELING EXHIBIT

BY D. W. HOWELL

Finding that I should have a crop sufficient to be of interest, and wishing to secure the best price for it, I concluded to try selling from house to house, and see if I could realize more for my honey. So I hit on a plan of getting the attention of the ladies and children, or any one else who might be interested.

Taking my bees with me, and sample of honey, I started out one bright morning in May, going to a neighboring town. I stopped first at the railroad lunch-stand. The proprietor was very much pleased with my bees, and bought a can of honey. I then went to the dwelling-houses.



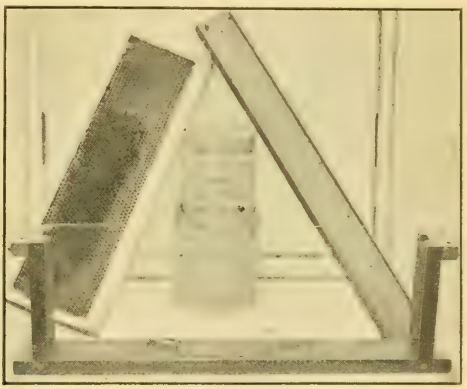
The traveling-case closed.

I use a simple traveling observation comb in a case simply made. It is easily taken apart to remove the frame of bees and to clean it. The glass can be removed when the top is taken off, and I always make sure that they are clean and bright before I go off with the case of bees.

Stopping at a house I would get the lady of the house to look at the bees and the queen. I would then show her the honey, telling her about the size and weight of the cans, and also getting her to taste of the sample, with one of the small strips of clean white paper I carried with me for the purpose. In this way I would quite often get an order. I found that I could get 10 to 12 cents for good extracted honey sold in this way, when others could not get any more for good comb honey.

My nearest town each way by rail is ten miles. One has a population of about 1500, the other about 3000. My home town has a population of about 1000. By this plan I sold in these three towns nearly 3500 pounds of extracted honey. I have a strong competition here in the form of a good home-raised Georgia cane syrup. Many prefer this to any honey. The syrup seldom sells above 50 to 60 cents per gallon—far below honey in price.

Now, if I could do this well in three small towns, and with strong competition, I think it would be an easy matter to sell honey by this plan where there is almost nothing to compete.



The traveling-case dissected.

The last days of October I had occasion to visit a city of 50,000 inhabitants. I had about 200 pounds of honey left; so I concluded to try my case of bees in a larger town. I had no trouble in disposing of all the honey I had left, and could have sold more, all in about one day.

In this place I sold extracted honey at 12 cents per pound and to all classes of people, and only in the business part of the city. I did not visit a single residence during the day. I found that the ladies were my best customers; and to try this out fully I went to several drygoods stores where a number of ladies were employed. They were very much pleased with the bees, and I received more orders for cans of honey than at any other place.

On this trip I carried about one hundred



GLIMPSES OF IOWA BEEKEEPERS—*By* FRANK C. PELLETT.

1. John Grecian's honey-house of hollow brick. 2. The apiary of John Grecian, Kalona, Iowa. 3. Apiary and honey-house of W. V. Francis. 4. Home of W. V. Francis, Ft. Dodge, Iowa. 5. Auto used by J. H. Schlenker for outyard work. 6. Home of J. H. Schlenker, Ankeny, Iowa.



GLIMPSES OF IOWA BEEKEEPERS

7. Miss Merta Mitchell, Keokuk, Iowa, uses a tripod and wire stretcher for a combined hive lifting and weighing device. 8. H. B. Morrison, Fayette, Iowa, sells most of his honey from an auto. 9. B. L. Scarlett in his apiary at Anita, Iowa. 10. Apiary and honey house of J. I. Wiltsie at Arlington. 11. Home of C. A. Gallagher at Maquoketa. 12. Hon. Eugene Secor and a mock orange in his apiary at Forest City.

of the folders, "The Food Value of Honey." Using them as business cards I had stamped on the back of each, with a rubber stamp, my name and address. These I would give to each one that bought honey, and to others where I thought best.

In using this plan, be sure to have bright, clearly marked bees, and a bright young queen. It is best to have a small amount of brood in the frame, and let it be a frame that belongs to them.

Make sure there is plenty of ventilation at each end of the case, as this will help to keep them contented on hot days more than anything else. My case is built for a shallow extracting-frame 5⅜ inches deep, which I find is about right to carry, and can be handled easily. The bees will stand several days' confinement if they are young, have sufficient ventilation, and some honey to eat.

I use several shallow eight-frame extracting-supers as a nucleus to draw these frames from, keeping good young queens in them. I do not carry the same queen with me every time, but give them a rest. By maintaining a nucleus one is able to find the frame best suited for carrying in this way, and have a chance at getting young bees. If the nuclei get too strong, give some of their bees to a weaker colony.

In going around with the bees, be sure to interest the children all you can, letting them look at the bees and taste the honey. Leave a sample where it would appear to good advantage. Samples will often sell some of your honey easier than you can yourself.

You should be well posted on bees, and be able to answer a great many questions that will be asked. The average person knows very little about them, and will ask some questions that will be hard to answer in a way they can understand.

One of the most common questions asked was this: "How did you get the bees in the box?" Many of them had very queer ideas as to how this could be done. Many questions were asked about the queen, and what she did in the hive. Some would have the idea that she is absolute ruler, and would make the remark on seeing her the first time, "Doesn't she make them stand around?" Much surprise would be expressed when they were told that she does not rule the hive, but is its mother; that she will at times lay more than two thousand eggs in a day, and that she is the only bee that lives twelve months or more.

Shellman, Ga.

THE FACTOR OF CLEANLINESS IN HONEY DISTRIBUTION

BY JOHN W. LOVE

Whenever a housewife in Naples wants a morning quart of milk for the bambino all she has to do is to waylay the milkman as he drives his flock of goats through the narrow streets. The proprietor of the dairy milks the goat, shooting the fluid into any bucket or bottle the customer happens to have with her. The only merit in this system is its cheapness.

It is a long way from the simplicity of the Neapolitan goatherd to the business acumen of the distributor of a trade-marked milk who buys from scores of dairy farmers, maintains a dozen condensaries, advertises in national magazines, and hands his product to you in a labeled can which is attractiveness itself.

The one calls at you from the street, the other buys magazine space to show pictures of "contented cows." You drop a few centesimi to the Italian for a quantity of milk you both guess at. The other milk comes at fifteen cents a can, always the same amount, about enough to make a quart when thinned. In these and other differences lies much of interest, some points of which may be applicable to the business of selling honey.

One of the reasons for the eagerness with which the public has taken up the trade-marked crackers in preference to those scooped out of barrels is the superior cleanliness of the article put up in packages. The progress toward ultra neatness is part of that greater movement in sanitation which, during the last century, has taken the terror from many diseases and entirely extinguished a number of them. It is part of the same movement which has cut down infant mortality and boosted the average expectation of life. Absolute cleanliness is built into the new civilization. Those who fail to come up to its standard are finding themselves left with the reactionaries and forced out of business.

It is true that honey is now seldom sold in bulk, like vinegar or cider. Only in localities does one still find a beekeeper peddling in open buckets. Indeed, the beekeeper, feeling the dignity of his profession, is dropping the word "peddling" from his vocabulary. But bottles and cans of honey



Poorly built stone road over-grown with white sweet clover self-seeded from that growing by the roadside.—Photo by KARL JENKS, Medina, Ohio.

in doubtful sanitary condition cannot hope to compete with the canned glucose (corn syrup), apple-butter, and maple syrup, which the householder may buy instead of honey.

When the shopper looks over the rows of wares on a grocery shelf, which is she most likely to select—peanut butter in a glass tumbler neatly labeled with a picture of a beechnut with its suggestion of crisp frosty air and autumn woods, or honey in a foggy fruit-jar, sticky with finger-prints? Should that honey come into competition with another brand of the same product put up in clear bottles and trade-marked, the price difference will have to be great indeed to induce the modern housewife to select a more commonplace product.

Comb honey put up in a dust-proof carton suggests delicacy and sanitation more than that displayed in a glass showcase. While the conditions within the case may be ideal, what may not have happened to the honey exposed on a dusty road, or caressed in the hands of the grocer boy?

The public taste for the article suggesting absolute purity you may describe as captious or discriminating, according to your own temper; but it does no good to call it names. The mood will persist. It is the result of a quarter of a century's agitation by the food scientists, chemists, editors, the national Government, and progressive manufacturers.

Nor is the use of trade-marking goods by the consumer necessarily a step away from real economy. This may be true in particular cases; but in such articles as whole-wheat biscuits the price and the amount purchased are universal and constant. Where the same things are sold in bulk the purchaser may pay a few cents less; but he buys articles which may be dirty or exposed to the moisture of the air or short in weight. Competition between dealers in the same food, or in foods which compete with one another, like "corn syrup" and honey, keeps the price as low as compatible with cleanliness and reasonable profit. A constant price and a standard weight are substituted for a price the dealer thinks he can get, and a weight which may or may not be accurate, according as the state inspects his measures or scales.

To preserve the superiority of a canned and cartoned article over the same thing in bulk, and at the same time to help lower the cost of living, some manufacturers are putting out what is known as the "family container." Honey distributors are finding it successful with extracted honey. The can will hold five or ten pounds, and in some cases is returnable when empty, with a slight rebate. The price can be held at only

a little more than the same article in bulk. With a label and a trade-mark, together with self-evident cleanliness, all the virtues of the small package are retained. Even ten pounds of honey is not an excessive amount if the cook can be told not to keep it in the refrigerator.

The whole trend can be summed up in a paragraph by Mr. Erwin McDonald in *The Forecast* (New York): "Any going back to old conditions would mean a relaxing of watchfulness, a removal of responsibility, and a consequent loss of all that has been gained. In a pure-food movement there is no looking backward toward unsanitary methods because carelessly handled and unidentified foods cost a few cents less."

THE FACTORS THAT CONTROL THE PRICE OF HONEY

BY BENJAMIN F. KIRK

Honey "boosting" is just the best ever if properly done; but it must be done at a profit. It may not be that it must yield an immediate profit, but it must show symptoms of an ultimate profit. One correspondent for an American bee journal advocates the reduction of the price of honey in connection with increased publicity. Another suggests that an additional charge must be made to cover the expense of printing posters, display cards, newspaper advertising, furnishing displays for grocery stores, etc. Now, in the light of ordinary business sense, which one is right?

"Large sales and small profits" is a catchy phrase, and many are deceived by it. The trouble is, too many fellows who are doing a 5000 or 10,000 pound business seem to think they are the giants of the honey business. It seems to me that no one handling less than 100,000 pounds annually is justified in thinking he belongs to the "big business" class. If the Standard Oil Co. were selling only a few thousand gallons of oil yearly, instead of millions, the price of oil would necessarily be much higher. If a beekeeper does not get such a price that he can pay interest on the capital invested, depreciation on the equipment, hire every stroke of work done from the nailing of the hives to the selling of the honey, and still have a profit left, his business is a failure. The public will pay the price if the beekeepers demand it and furnish quality goods.

In a large part of the United States the bee and honey business has many uncertainties connected with it. Nearly every year the beekeepers in some part of the country have to feed to keep the bees going till the next year. This uncertainty has driven some good beekeepers out of the business. But for some reason it rarely seems to affect the box-hive apiarist very much. It's true he's out of business for a year or two, and then he catches a stray swarm or two, and again starts his business of throwing chills up the spine of the neighbor who is trying to make a living in the business. In many ways the correspondent's idea of licensing the beekeepers sounds well; but where would it end? Wouldn't the hog men, the cattle men, and others ask for the same method of eliminating the undesirables, and, at the same time, unpleasant competition?

I do not believe there is one city of 10,000 inhabitants or over in a certain central state that is using the amount of honey that there is a market for. When I speak of the possibilities of a market I mean the profitable possibilities. A town can be worked so frequently and so thoroughly that the last time over will not yield a profit. Along another line of business an old gentleman used frequently to say, "Go slow, and learn to peddle." It takes considerable will power for some people to force themselves to do the house-to-house selling stunt. But it is where the average beekeeper will find the profit. A medium-sized production of honey sold direct to the consumer at the retail price pays more profit than a much larger production wholesaled. But it's a good thing for some beekeepers that most other beekeepers are too timid to canvass.

Indianapolis, Ind.

THE ADVANTAGES OF LARGE HIVES

BY F. A. CONNOR

The tendency for some time among several progressive apiculturists is toward the adoption of a hive that prevents the swarming propensity, gives sufficient capacity for the most prolific queens, and can be contracted or expanded according to the requirements of the colony. A hive should be adapted to the production of comb or



My colonies in Jumbo extracting hives averaged 100 lbs. of honey.

extracted honey; it should make ease of manipulation possible, interchanging with standard bodies, supers, covers, and bottoms, and successful indoor or outdoor wintering.

Many hives called standard cannot accommodate one quarter of the bees, comb, and honey which in a prosperous season may be found in large ones, while their owners wonder that they obtain so little profit from their bees. It is very evident that profit can be derived from bee culture with almost any style of frame or hive, but it is also an established fact that in every pursuit some conditions produce better results than others under the same circumstances.

The number of frames to be used in a hive depends on their size, for we should manage our bees and give them such space as is necessary to obtain the best results. It is unquestionable that the quality of a queen depends on the quantity of eggs that she is able to lay. Then why limit her by adopting a hive as your standard so small that she cannot develop her fertility? I wish to take the opportunity of again asserting that my preference for large hives is based on an experience of nearly twenty years with hives of different sizes, and various races of bees.

In addition to the disadvantages of small hives, another—greatest and most important of all—is the excess of natural swarming which they cause. The leading advocates of small hives, some of whom are the largest honey-producers, invariably acknowledge that they have too much natural swarming. The cause is, solely, contracted brood-chambers.

I find that among the manipulations that tend to discourage swarming, especially with the Carniolans, which are claimed to be excessive swarmers, is abundance of ventilation during the honey-flow, obtained by means of a large entrance, protection of the hive from direct rays of the sun, and plenty of storage room. I desire to mention that the hive I have finally adopted is the ten-frame Jumbo. These hives consist of two regular dovetailed Jumbo bodies, Hoffman 11¼-inch-deep frames; covers and bottoms, where used for extracting purposes.

One can adopt the Jumbo hive and still keep on using the standard Langstroth ten-frame hive and supers. In my judgment it is of the utmost importance to have a hive which standard supers and covers will fit, and one adapted to bottom-boards; and to such an extent am I an advocate of this hive that I have discarded all other sizes that were in my apiary.

As a non-swarmer, or practically so, when operated for extracted honey, this hive is unsurpassed; and as to the production of comb honey, I find that bees readily enter supers; and it is an ideal hive for purposes of tiering up. The brood-chamber is of such capacity that the most prolific queens rarely venture into supers or extracting-bodies, although queen-excluders are advisable. Colonies retain what nectar is placed



Boulder field meeting, June 12, under auspices of the Colorado Honey-producers' Association.

in the brood-chamber. These are ample stores for the most populous. With swarming controlled for the entire season, colonies will necessarily be well supplied with bees to insure perfect wintering.

I wish to impress on the mind of the reader the advisability of the use of large hives. Possibly I have given too much praise to this hive; but let me say here that one should study his locality very carefully before deciding on what size of hive to adopt as his standard.

As to the race of bees, my preference is the Carniolan. I find that they are a very hardy and vigorous race, breed very early, and queens are very prolific; and as to honey-gathering qualities it is unsurpassed.

Worcester, Mass.

THE GUM-TREES OF AUSTRALIA

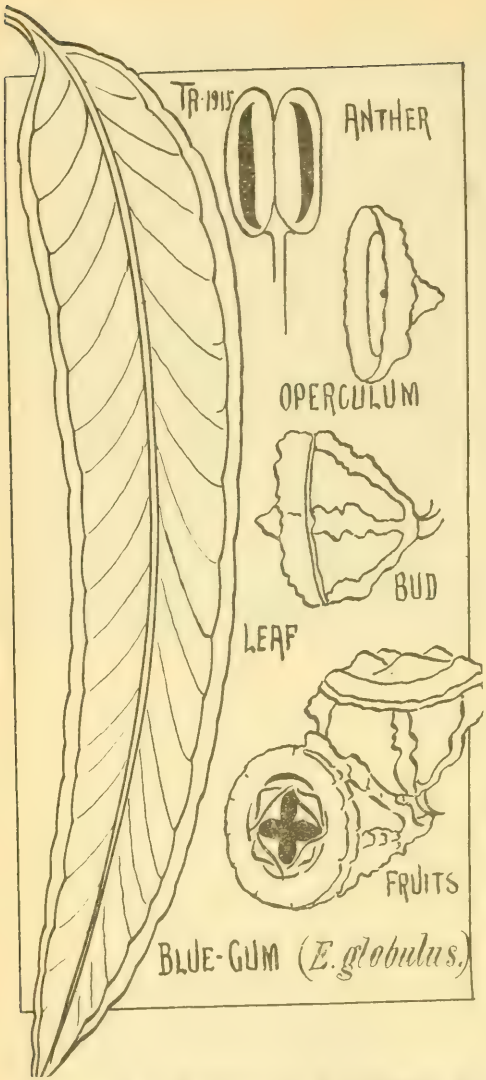
BY T. RAYMENT

BLUE GUM (E. GLOBULUS)

So named from the globular fruits. This tree is well known to Californians, and is most favored by foreigners for planting. It is not a heavy yielder of nectar, but it is splendid for pollen in early spring every year. The best record the writer is aware of is somewhere about 56 lbs. per colony of amber-colored, rather thin honey, which candies rather quickly. Blue gum grows very rapidly, and coachmakers value the timber for shafts, poles, reaches, etc. It is



Part of E. Fleming's apiary and orchard, Victoria, B. C. Mr. Fleming suggests that this photograph might win a prize, if one were offered, for "artistic" irregularity. The hives are almost surrounded by small oaks.



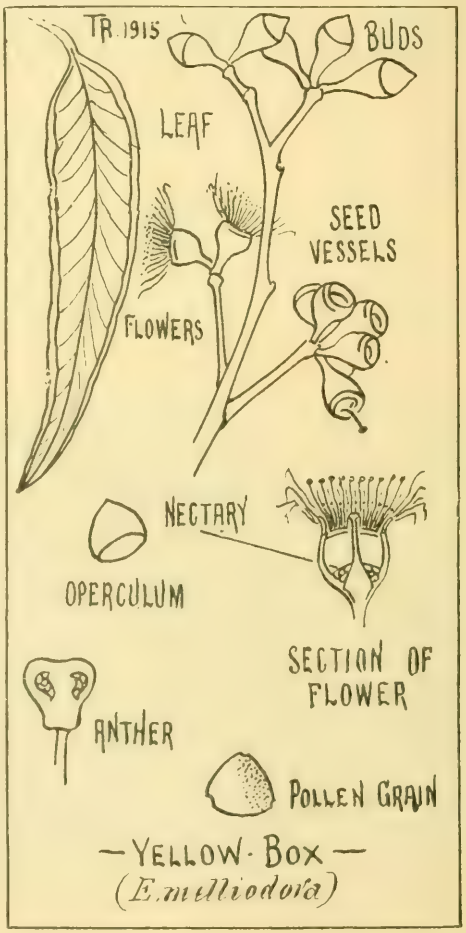
indigenous to Tasmania and the costal region of Victoria. At Leongatha, Gipps, Vic., there is a blue-gum stick standing that has had the top *chopped* off at a height of 97 feet. These forest giants are usually fallen about twenty feet from the ground, and the axed scarp is frequently large enough to permit a man reclining in it. Like all pollen from the eucalypti, that from the blue gum is creamy in color. It is needless to say the nitrogenous content varies with each species. The slits in the anthers that liberate the pollen grains are shown in the sketch.

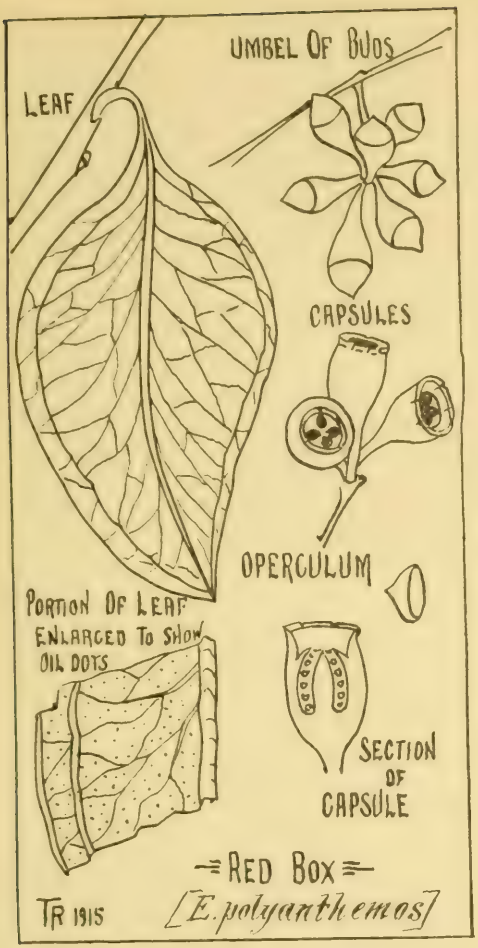
YELLOW-BOX (E. MELLIODORA).

From *mel* (honey), and *odor*—scent; therefore "honey-scented box." It is indigenous to the whole of the eastern states, and is a most popular honey-tree. It blooms profusely every second year in early summer, and yields practically no pollen. For this reason, bees in pure yellow-box forest die for want of protein, notwithstanding the abundance of honey, which is pale in color, exceedingly dense, and of delicious flavor. A yield of 350 lbs. per colony is not considered very remarkable. The honey remains liquid almost indefinitely. Where the flats and swamps grow river red gum (*E. rostrata*) the rising land is generally clothed with yellow-box, so that the honey crop is a composite one. Women folks clamor for the hard heavy timber for stovewood. In Australia it is used for poles and railway sleepers. The details in the drawing are variously enlarged. The openings in the anther permit the pollen grains to issue. The nectar surface is depicted in the section of the flower.

RED-BOX (E. POLYANTHEMOS.)

Poly, many, and *anthemos,* flowers.

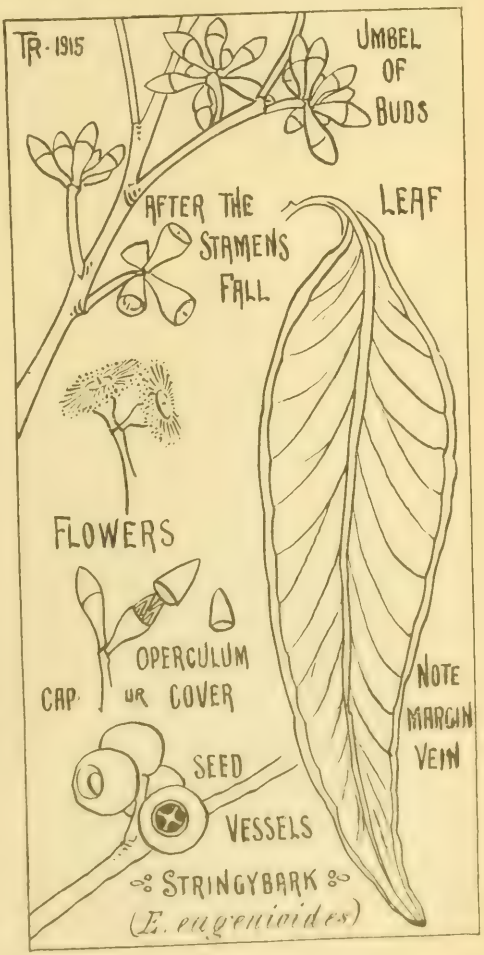




Appropriately the many-flowered box; for every second year the trees resemble giant cauliflowers. The very pale dense honey rarely candies, and is of fine flavor. This eucalypt blooms in early spring, and yields a little pollen and a great flow of honey—up to 150 lbs. per hive—over a period of three months. This species is found chiefly on stony, gravelly ridges in combination with some variety of stringy bark. The timber is ruddy, hard enough to gap the best American ax, and is very dense It is much sought after for railway-sleepers, bridge-beams, and fence-posts, because white ants (termites) do not readily attack it. The foliage is bluish in color.

GIPPSLAND STRINGY BARK (E. EUGENIOIDES).

This eucalypt favors poor sandy country, and its period of florescence is so prolonged that weak colonies are able to build up strongly and store a good surplus. An apiarist here in Gipps once secured 14 tons from 150 colonies. It is difficult to determine the normal flowering period, for blossoms may be found in the forest throughout the year; but it is usually autumn (and sometimes right through the winter) when the crop is harvested. As the abundant creamy-colored pollen is rich in nitrogenous proteid the colonies develop in a truly wonderful manner, and are quite as strong in midwinter as in midsummer. It is difficult, however, to extract in the cool weather. The rich amber honey—this species yields the palest nectar of any stringy bark- is so dense that it clings to the extractor-can in thick ropes, and effectually prevents the reel revolving. Colonies are thus always in fine order for the red-box flow in early spring. The flavor of the honey is full and rich, so that other honey tastes insipid in comparison. In the drawing, the operculum, or cap, is shown as it clears the expanding stamens. This characteristic is responsible for the name "eucalyptus," meaning well



covered (from the Greek, *eu,* well, and *kalypto,* I cover). It is a fine tree for builders' woodwork, bridge-beams, railway-sleepers, fence-rails, etc. The bark is stripped off in sheets, and sheds are covered with it, while many apiarists use a small piece for a hive-cover. It was a tree of this species described by Major Shallard, of New South Wales, in GLEANINGS recently. The oil dots, although described under red box, are peculiar to the whole family.

RED IRONBARK (E. SIDEROXYLON).

Sideros, iron, and *xylon,* wood. This remarkable species is easily distinguished by the bark, which is unlike that of any other tree. It blooms in winter and yields heavily, but the abundant pale nectar is "suspect." Many Australian apiarists associate bad wintering with the ironbark bloom. Whether this is due to the unripe quality of the honey, gathered late, or to some deficiency in the chemical constituents, has not been conclusively demonstrated. The trouble, after all, may be due to some extraneous cause quite distinct from the nectar. It is well known that bees will sometimes fail to visit ironbark, even when the blossom is fairly "dripping" nectar. The vast majority of eucalypts bear white or cream flowers. There are a few exceptions, and ironbark is one of them, for the flowers are *sometimes* pale pink. The pollen is abundant, and cream in color, and the honey is of good flavor. The timber is red in tint, of great density. It will sink like a stone, and is highly prized for its endurance under stress and strain of all kinds. Ironbark frequents the ranges and flourishes on granite and Devonian rock formations. In this article the possibilities of the eucalypts are only hinted at. The matter is more fully dealt with in my book, now in the publisher's hands, "Australian Honey-plants and Bee-farming."

There is another item of interest—the trees of this family generally hold the buds for about 12 months before blooming. Furthermore, the nomenclature is confounding. Ironbark in Victoria becomes spotted gum, or blue gum in the adjoining state—hence the value of specific names.

Briagolong, Victoria, Aus.

[*Editor's Note.*—This is the second of a series of three articles by Mr. Rayment on certain important pollen and nectar yielding plants of Australia. The concluding article will appear in the next number.]

FINDING THE BEE-TREE

BY E. E. COHEN

While in a reminiscent frame of mind one day lately, my thoughts wandered back to the happenings of my boyhood days, and memory recalled the unfading picture of a most fortunate finding of a monster bee-tree by mere chance.

A skilled bee-hunter had made a long and careful hunt for it. He had located the tree as one of a thick clump of giant hemlocks. He had searched each tree carefully with his still keen eye and spyglass for bees to indicate the entrance, but in vain, and had declared the entrance impossible to find because of the heavy shadows of the dense tops and interlacing boughs.

The scene of my exploit was in Sheldon, in the western part of New York, where my father owned a farm at that time. I was then fifteen.

One warm day in early September, 1859, the thought came to my mind to go out to the woods about a mile and a half away, and look over the big hemlocks for the unfound bee-tree. I started at once, and was soon in the timber where I had seen and followed the old bee-hunter in action. I had noted the trees that he had examined as most likely ones, where the beelines intersected, and these I at once proceeded to inspect closely. I could examine only the west side of each tree because of the approaching sunset. Having examined several trees closely without result I moved on to another, a big fellow about three and a half feet further through, when, presto! looking up some seventy or eighty feet from the ground I saw in a little patch of sunlight a sight that set my nerves tingling, and caused me to throw my hat up in the air and fairly shout to the echo of the woods, "There they are!" and there they were, sure enough, very plainly flitting in and out at the entrance, and many prancing about in all the glee of young bees enjoying a sunshine bath. It was undoubtedly the only time of the day when the sun could shine upon their entrance, hence their gambols that gave them away.

Not much grass grew under my feet on my way home with the glad tidings. With my father and a neighbor to help me the tree was downed early the next day, and the honey secured. After handing out a full supply to the onlookers and to the party who helped us, the net proceeds of extracted honey filled an eight-gallon jar.

A HONEY-SIGN AND WHAT IT SIGNIFIED

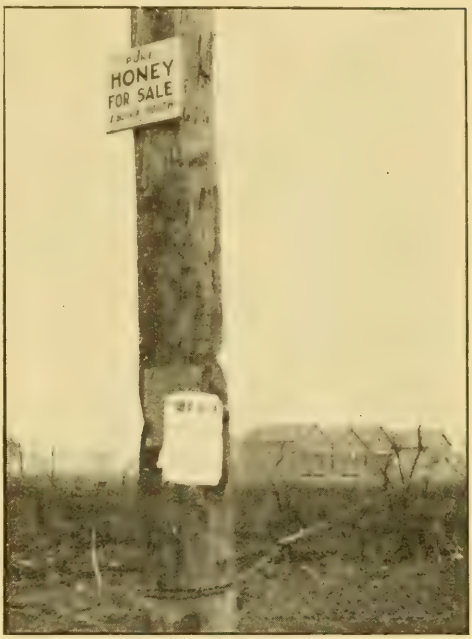
BY J. L. GRAFF

I first saw the sign on the telegraph-pole, and from that hunted up the scene of honey-making operations. Robert Kroschel, who owns the outfit, is shown in one of the pictures. He lives in the heart of Chicago, but in the outskirts he rented the wired-in patch of land for five dollars a year. Some little distance away he put up a workshop where he does all of the work incidental to his prairie apiary. He was induced to locate in the vicinity because of the large amount of clover and goldenrod. He has 43 colonies in modern hives. As most apiarists know, last year was a bad one for honey; but he got about 1000 pounds. From some of the colonies in other years he has received as much as 160 pounds each. In winter the hives are well packed, but have no cover other than that shown in the picture.

One of the points that ought not to be overlooked is the utility of the neat little sign on the telegraph-pole. That little board got him customers that took most of his honey, and he sells all of it. The sign is located at the junction of two great highways, and trade came to this apiarist from all directions.

Kroschel has good honey-making stock. His workers are gentle; he makes use of the Italian three-banded queen. This apiarist lives five miles from his apiary; but up to this time no one has ever disturbed it in his absence.

Chicago, Ill.



A sweet and effective by-use of a telegraph-pole.



The apiarist and his apiary.



Pear blight entered the growing tips of the blossom.

PEAR BLIGHT OR FIRE BLIGHT

BY DR. H. A. SURFACE

During the present year there is an unusual manifestation of pear blight or fire blight on apple, pear, and quince trees, from the Mississippi River to the Atlantic Ocean, and from the central portions of Illinois, Indiana, Ohio, and Pennsylvania, southward to Alabama.

This disease makes itself manifest by the death of the leaves, fruit, and bark of the infected apple, pear, and quince trees. It is given various names such as pear blight, fire blight, leaf blight, black blight, black twig, black flag, black leaf, twig blight, canker blight, body blight, bark blight, trunk blight, collar blight, and collar rot. In the last-named form it is by all means the most serious and destructive enemy of our fruit-trees because it works around the collar and roots of the trees, and cannot be headed off nor cured; and when it girdles the tree the latter dies.

This is a bacterial disease that enters through the tips of growing shoots or through blossoms, or through any part of a living leaf, fruit, stem, twig, or bark that may be injured by the puncture of an insect or otherwise that will thus permit the entrance of blight germs. When the germs once get inside the bark they spread both upward and downward through the cambium or growing layer, and cause the bark to turn black and the wood to become brittle. A blighted twig is often seen broken and hanging downward.

The bacterial germs spread much more rapidly in fruit-trees that have grown rankly. This is doubtless because the wood is more porous and the sap ducts are larger, and admit the passage of the germ more readily in the pores of thickly grown wood. It is conspicuously true that wherever trees are grown in very fertile soil, or have been fertilized with barnyard manure or other nitrogen fertilizer, or have been cultivated considerably to make them grow, there, as a rule, the blight is greatest this year. This means that for these trees that are subject to blight it is best for the orchardist to practice such methods as will reduce the amount of vigorous growth. Among these are light summer pruning, seeding down with a cover crop like crimson clover or rye, avoiding cultivation and nitrogen fertilizers, and applying only fertilizers containing phosphoric acid and potash if any.

Unfortunately the only real remedy that

has been proposed by fruit-growers is to cut out and burn the blighted parts. The cut should be made at least a foot below each of the lowest blighted places. The cut stub should be sterilized by washing with antiseptic material such as lime-sulphur solution or corrosive sublimate in water. It has been proven by experiments that it is not necessary to paint the dry stub with a protecting paint as it will heal, or, in many cases, is as well without it. The infected trimmings should be carried out of the orchard and burned.

The important point to beekeepers is the means by which the germs of blight reach the trees, or, in other words, by which the trees become affected. It has been alleged that bees are responsible for practically all the dissemination of blight germs, while the fact remains that the air is full of such germs, and they may enter the trees at one place as well as another. Ants crawling up and down the trees carry the germs in great numbers. Plant lice or other insects puncture the trees or growing shoots, and the blight germs enter there. Wasps, flies, and various other insects are just as liable to carry the germs of the disease to blossoms as are bees. Even if the bees should be carriers of the germs causing pear blight, the quantity of the disease that the bees carry is very small in comparison with that conveyed by other means; so that if it were possible to stop all the honeybees from carrying pear blight, the dissemination of this disease would be practically as extensive and as speedy as it is at present.



Twigs once in healthy condition.



Pear blight entered the growing tips of the shoot.

One of the photographs shows blossoms where the blight germs entered and killed the branch. The others show twigs that are dead from blight that were once good and healthy, and in vigorous condition when the blight germs entered and destroyed them. While it may be argued that the bees carry the germs to the blossoms, it cannot be proven that this is not done by other means. Yet, on the other hand, no one would even dare argue that the bees carry the blight germs to the new shoots without blossoms. Therefore, it is unjust to say that wherever a blighted fruit-spur is to be seen, this was due to the activity of the bees any more than to say that the blights of other parts of the tree were due to the same causes.

It is possible that many trees may recover from the blight; but many others will continue to carry it over the winter and from year to year. The best way to get rid of such disease is to be prompt in cutting it out, and cut from six inches to a foot below the lowest blighted area.

Harrisburg, Pa.

THE HOME-BUILT TRACTOR

It may Often be More Efficient than the General-purpose Tractor

BY XENO W. PUTNAM

The gasoline-engine is the wonderful chore-boy of the modern apiary, farm, and household, wherever power is needed in such small quantities or at such irregular and brief intervals of time that steam power would be out of the question, and in places where electricity is not as yet available. It is a specially useful chore-boy in the performance of those tasks wherein the source of power must frequently shift from place to place, perhaps doing some of its work while in the act of shifting.

For the latter purpose it is none the less a legless chore-boy whose usefulness is seriously impaired by its crippled condition. Faithful and powerful as it is when set up and belted to its tasks, in the interval of being conveyed from one to another it becomes a helpless mass of iron that must be wheeled or hauled or carried about by some other source of power, all because even the least of the excellent small power tractors now upon the market are still too heavy, cumbersome, and expensive to be useful in any but the largest apiaries.

In a good many cases the apiarist feels that he is unable to afford more than a single source of power. The gasoline-engine seems perfectly adapted to his varied and intermittent tasks of running a rip-saw, a buzz-saw, planer, lathe, separator, pump, or any of those innumerable tasks which are too quickly over for the employment of steam and too back-breaking to be comfortably done with human muscle. For such work, horses are not very available excepting through tread power. Still, horses are usually required to move even the small power gasoline-engine from place to place occasionally unless we are willing to tote all of the varieties of work by hand or by horse power to the engine. Not every apiarist feels able to keep both a team and an engine. There is always more or less danger of accident, too, in the working of even the steadiest of horses among the gentlest of bees. The power that the apiarist really needs is something that, like the gasoline-engine, can be made to develop from one to three or four horse power at the belt without any preliminaries in getting up steam; a power that is ready for the work whenever the work is ready; something that does not cost much more than a single horse—certainly not more than a team; that can be diverted in a moment from belt to drawbar usefulness; something that may be taken right among the bees if necessary, and left to stand any place by the hour without any fear of stings or danger of runaways.

It has been recently announced that a new gasoline-tractor is soon to be put upon the market at a cost of about $200. This, when it comes, will be a godsend to the big apiarist and small farmer. The man with a hundred or so colonies, a big garden, and a few acres of general farm ground, will still in most cases feel compelled to get along piecing out the work of his less expensive little stationary engine by the sweat of his brow. Then there are men who already own a gasoline-engine that is all they can ask at the belt—men who cannot afford two engines, and who do not care to give up the one they have. For all of these men the home-made gasoline-tractor, which can be made at little cost, and out of almost any engine, fills the bill as nothing else can do. All the more is this true because the home-built tractor may be so constructed that it will be specially adapted in every way to apiary work. Home-made tractors are not intended as rivals of the factory-built machines; still, they may often be made to serve out some special mission far better than the general-purpose tractor. They also have the advantage of being available in many apiaries and small farms where even the cheapest of tractors could never be afforded.

In preparing the manuscript of a book upon this subject it was recently necessary for the writer to communicate personally with more than one hundred home-tractor builders, not any two of whose rigs were exactly alike. In fact, the very range and variety was one of the best proofs that the specially constructed tractor can be made that will fit into almost any niche the builder wills. In range of power the engines in these rigs run from one-horse to forty, and in cost from one dollar (outside of the engine and personal work, of course) to $1260, the latter being designed for special work for which no tractor upon the market served the purpose of the owner so well. Practically every style of engine was utilized—air-cooled, water-cooled, vertical, horizontal, two-cylinder opposed, twin cylinder, single cylinder, and multi-cylinder. In one instance an auto engine was lifted out of a light auto buggy, and, at an expense of less than $5, mounted in a big harvesting-machine and made to cut 800 acres of wheat

without the aid of a single horse. Another tractor builder has succeeded in constructing a home-made machine with which he does all of his work, light and heavy, on a 200-acre farm without horses. These generalities are enough to prove that no apiarist need feel discouraged or doubt his ultimate success, if his work is well done, no matter what the size and style of his engine or what purpose he requires of his tractor.

A good many home-made tractors have been featured more or less of late in various farm and other papers; but the details of construction have been in nearly every case too meager to be of much assistance in the building of even a similar rig. In this series of articles it is proposed to tell the "just how" of home-tractor building with as much detail as possible, and still make the directions general enough to apply to all engines. Where necessary, working drawings and illustrations sufficient to make all of the steps plain will be given, particularly in relation to those parts which render a tractor of special value for work among the bees.

Harmonsburg, Pa.

[This is the first of a series of three articles by Mr. Putnam, entitled "The Home-made Tractor." The second will be published Sept. 1.—Ed.]

A FEW REPORTS ON THE VALUE OF ASTER HONEY FOR WINTER STORES

Frequent Flights Make Wintering on Fall Honey Successful

BY SARAH A. GRAVES

My bees are in double-walled hives, packed with sawdust. I use one chaff division-board and tray of shavings for winter. They are quite well protected on the north and west by outbuildings, trees, and shrubs.

We have a large yield of goldenrod and aster honey. I have found the bees late in the fall working on asters a mile from home. They worked on asters last fall till killing frosts, and went into winter quarters very strong in bees and stores. They had a good flight Dec. 7. Then followed a month of very severe weather, said to have been the coldest December in this section for forty years. On Jan. 7 they had another good flight, another one early in February, and frequent ones from then on. The strongest colonies lost scarcely a handful of bees, judging from entrance indications, and the others very few.

March 24 was the first day on which I saw pollen carried into the hives. On May 5, the first suitable day on which I was at liberty to give the hives a thorough examination and clip queens, I found two colonies with six frames of brood, three with seven, two with eight, two with nine, and one with ten. The last one had several sealed queen-cells, and two others had cells started. I found an unusual quantity of drone brood. Combs that were nearly perfect last season had drone-cells built in every conceivable place, even a few cells right in the middle of the frame.

Last season one cutting of cells in my best colonies stopped swarming for the rest of the season. This year I am cutting cells every week, and yet I have already had four swarms, and the rest of the ten are going to follow suit. I can't understand why they have developed such a swarming mania, because, with the exception of a day now and then, the spring has been unusually cold, with more than our ordinary amount of rain. They have all commenced work in the supers.

I have one queen which is a living witness of how much a bee can endure. In June, 1913, I attempted to cage this queen, then about a month old. With the blundering awkardness of a beginner I pressed her against the comb, injuring her diagonally across the upper part of her abdomen. I thought she would surely die very soon, or that the bees would kill such a cripple. But she is living yet, and has proved my best queen. Her hive is always running over with bees, though she has no more brood than many of the others. Her bees proved good honey-gatherers and showed no inclination to swarm till this spring. They swarmed twice, and returned while I was away.

When I had a chance to examine the hive I found the bees worrying and pulling at the queen. I located her by her squealing. I at once put the frame in another hive. The bees drove her out of the entrance on the grass as fast as I could open the hive and put her in, till I fastened them in. In a few hours they had quieted down and she was back on the comb busy laying. She was not failing, for her hive was full of brood in all stages. She now has all the brood the nucleus can care for. By keep-

ing her in a nucleus I hope to keep her living all this season.

HONEY REFRIGERATED.

Last June I sold a woman a section of fruit-bloom honey. In September I made another sale to her. At this time she told me she had just taken the other honey out of her refrigerator, where she had kept it all summer. She did not notice until she took it out that the carton read *not* to keep in a refrigerator. She said the honey was uninjured, for all she could see. But she said she wouldn't risk any more.

Three Rivers, Mass.

[Evidently she had a good refrigerator in which the ventilation was so ample that the air was dry. The dampness in the average refrigerator is what injures honey.—ED.]

SUCCESSFUL WINTERING ON ASTER HONEY

BY J. F. KIGHT

As is generally known, the honey crop in Indiana for 1914 was a failure. Honey became so scarce in my twenty-five colonies in August that I bought 300 lbs. of granulated sugar at 8 cents, and commenced to feed about one quart to the colonies daily outdoors. Soon the queens had most brood-combs full of eggs and larvæ. By the middle of September the hives were boiling over with young bees; but I do not believe there was 50 lbs. of honey in all the twenty-five colonies. Fortunately I yet had some of my eight-cent sugar left when the white aster came in full bloom. To my surprise the bees refused any more sugar syrup, preferring the aster.

As each colony was unusually strong in young bees, what they did to that aster nectar was a sight. They filled every available cell, crowding the queens until, by the time the flow ceased, each hive seemed as heavy as that much lead. I do not believe there was a pound of any kind of honey in my whole apiary except white aster. In early November it turned cold, and my bees were packed in leaves with the single telescope cover until they were ready for almost any kind of winter weather.

My fear as to the results of the aster honey gave me a chill. I thought I would have only beeless hives full of aster honey in the spring. To increase this fear, when my bees did not get a cleansing flight from late in November to February 11, I felt sure I would have no bees left.

To my surprise, on Feb. 11 each colony showed signs of life, and all had a cleansing flight. My bees came through the long and cold winter in better condition than I have ever had them in my thirty years of experience in bee culture. I did not lose a single colony, but had four weak ones queenless on April 10.

To sum up, I firmly believe if bees are plentiful in the hive, can have plenty of time to ripen the honey, and are well protected on the summer stands, there need be no fear from aster honey.

Indianapolis, Ind.

DRY LOCATIONS DIMINISH WINTER LOSSES

BY W. C. FLEMING

Bees filled up heavily last October on aster honey, and I was very much pleased, as I had never had any trouble wintering on this honey, neither had I ever heard of any objections to aster honey as a winter food in this latitude. Bees get a flight almost every week during the winter months.

I have my bees in two yards, one at home and the other a few miles east of home.

My home yard of eighty-five colonies is located in a rather thick pine grove with heavy woods on the north and west. Little sunshine or wind gets to them, and the ground is rather low and wet.

In this yard my loss was rather heavy for North Carolina. I lost seven outright, and more than a dozen were very weak and almost worthless when spring came. They showed spots along the front of the hive, telling plainly that dysentery was the trouble. My other yard east of home wintered perfectly, not a single loss, nor could I detect any sign of dysentery.

Both yards wintered on aster honey wholly, and all hives were well filled in both yards. Now for the difference. My home yard where the loss occurred is heavily shaded, and, on low ground, became very damp. The other yard where there was no loss stands out in the open where all the sunshine and wind can get to them. Hence they wintered in a dryer condition.

Greensboro, N. C.

THE PERENNIAL WHITE ASTER IN WINTER STORES

BY D. W. TAYLOR

For seven or eight years I have had from six to twenty colonies in Louisa County, Virginia. This is in the Piedmont region, about 500 feet above the sea—a poor location for spring honey, as white clover usually fails, but with large quantities of aster and a good deal of goldenrod. The aster is the variety with white petals and yellow center—the kind I see everywhere in the East, a perennial growing well on sour land, about two feet high on poor land and four feet on good land.

At the same time as the aster, there is available a large quantity of goldenrod of the short-branch headed variety which my bees seldom or never touch. The tall-growing single-spike headed variety is fairly abundant, and they work on it freely.

Usually my bees are quite light by September, but during the aster and goldenrod season they work diligently and the hives get very heavy.

I winter on the summer stands, simply contracting the entrance and putting a super full of leaves on top of the hive. I have had single and double Danzenbaker hives and ten-frame hives.

My winter stores are always mainly aster, I feel sure, because the bees work very strongly on it, and when it is coming in one can smell the odor a hundred yards away.

I have never had the slightest trouble with wintering—never lost a colony by dysentery or anything of that nature. Once or twice I have failed to winter a colony or two, but am sure that they were not queenright to start the winter. Of course, in my locality bees are able to fly a number of times during the winter.

Washington, D. C.

ASTER PUTS THE WIN IN WINTER

BY C. F. BUCHER

I always look to the asters to build up my colonies for winter. They have sometimes built up so strongly from aster that I have had a few swarms. I have seen four or five frames of brood the first of October, and every one knows what that means—a pile of young bees for winter.

I have wintered from 20 to 40 colonies, and have not lost half a dozen in sixteen years. One winter in this time they went to bed November 10 and never got up until March 5. I began to feel a little uneasy about them. Of the thirty that I wintered that year only one was dead, and I got the largest crop of honey the season following that I ever harvested.

I never saw any aster honey amber in color except when it was mixed with goldenrod. It is seldom that one gets aster honey in its pure state; but last year and four years ago I had no honey any lighter in color than that from the aster, nor any heavier in body. It was so thick that it was very hard to cut out of the sections on a cold morning, and when the weather grows cold one can hardly cut it at all.

Last year we sold 500 sections and 200 pounds of extracted in less than ten days, all from aster, and it was so light that it looked like white-clover honey.

In this locality we have the white aster. J. L. Byer says the aster with him is blue or purple.

Underwood, Ind.

WHERE ASTER WINTERS WELL

BY RAWLEIGH THOMPSON

Our bees came through the winter in excellent condition with a few exceptions. Out of forty colonies two are weak and two died—due to failure of queens, I think. Both were young queens, but they did not breed up last fall as did the others. On account of the prolonged illness and recent death of my aged parents, with whom my son and myself were living, our bees received little attention in the fall and spring.

For winter stores the brood-frames were almost solid with aster honey, gathered mostly from a weed that our Pennsylvania Germans call "Basum-reisich." It begins to bloom here about the middle of September, and continues until severe frost kills the plant. Sometimes the flow from this weed is abundant, last fall our bees making considerable surplus.

Not for the purpose of getting into print, but in view of what the editor, Dr. Miller, J. L. Byer, *et al.*, have to say about aster

honey. I may add that in this locality we depend on the late fall honey to carry our bees over the winter. Generally speaking, during July and August bees cannot find enough to make a living. As a rule hives are very light by the time the fall flow begins. Sometimes it is necessary to feed.

Littlestown, Pa.

WINTERING BEES ON PEPPERMINT CANDY

BY W. H. WEBB

Our bees wintered on aster honey, for this is our only fall flow here. I never have any trouble with dysentery. When we put our bees up in the fall we put a box of peppermint stick candy over the brood-frames and cover the candy with a piece of cloth and an empty super filled with tow sacks. The bees seem to eat the candy in preference to the honey.

I have been using peppermint candy several years for wintering, and it has proved successful. I don't know what the candy contains that prevents dysentery or pollen-clogging. I believe it is better than the other candy. I should be glad if other beekeepers would try this method and find out what the results will be.

We went in for the winter last fall with fifty colonies, and we lost four stands on account of the mice cutting them down. It was our fault by not closing the entrance. All the rest came through in good condition this spring.

Roanoke, Va.

ASTER HONEY NOT NECESSARILY FATAL

BY ARTHUR C. MILLER

Aster honey does not cause trouble when a stock has lots of young bees *and brood* late in the fall. But it and sugar syrup given late both are disastrous. I saw a number of good stocks dead on syrup fed *after* the first or second severe frost. Bees were all worn out. Hereabouts feeding is usually deferred until after frost. It is all right to a limit when the stock has brood and young bees, but I am now satisfied that other practices will be better—for instance, giving combs of sealed stores or candy.

I believe it will prove a gain to have a few stocks in summer kept busy filling combs with syrup purposely for fall use. I have to use a boiled syrup with tartaric acid in it, but even so it will pay.

Providence, R. I.

WINTER STORES IN JUNE

BY WILLIAM CRAIG

Almost every one differs in his way of feeding bees. I am using a ten-frame Langstroth hive. During the white-clover or basswood flow I take off as many supers filled, and all capped over, as I have hives of bees. The supers are just the same size as the hive-body. The super contains ten frames, the same as the body below. I set these away in a room in the house, and keep them until about Oct. 1, or until brood-rearing has ceased.

I now load on the wheelbarrow one of these supers that I have stored away, and begin at No. 1. I set the hive containing the bees to one side, and set the hive filled with honey on the stand. I take out one of the frames that was filled with honey, and leave it at the house to be extracted.

I now take a frame from the hive that I set aside, and shake the bees all down in front of the hive that rests on the stand, and continue to do so until the bees are all shaken off. This hive now contains nine frames all filled and sealed over. The nine frames are spread to an equal width, and a section tacked on top to keep them from shifting around. If I wish to move them around after the bees have gone in, every colony is fixed just the same.

I then take the frames that contained the bees and extract the honey out of them. Some of the hives would have scarcely any honey in them, while some of them would have had plenty to winter on, but I don't like to take any chance. Some may think this is a costly way to winter bees; but I think, taking all things into consideration, it is just as cheap as some of the other ways of feeding. I have done much feeding in my time and it has always looked to me as though the bees were wearing themselves out considerably during the process of feeding.

Aitkin, Minn.

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Boss, I always hear you talkin' 'bout de queen. Where am de King?

Kansas as a Bee State

I have been a reader of GLEANINGS for two or three years, but do not recall in that time ever having seen any mention or communication of or from Kansas. While this state is not so old as California, Ohio, New York, and other states in bee culture, yet, as in many other respects, "Kansas is to be reckoned with." I have no statistics before me; but for more than twenty years past a considerable quantity of honey has been gathered, especially in the western half of the state. In fact, while there is more or less Colorado honey shipped in, yet a considerable shipment each year goes out of Kansas.

Garden City is one of the best local centers of the bee industry in the state. Within a radius of ten miles of Garden City there are perhaps nearly two thousand colonies at this time. The swarming season began about the first of June, and is now practically closed. The increase has been quite large this season.

Our best and most productive honey-plants are alfalfa and sweet clover. Both produce a fine white honey, and of the finest of flavor.

Yes, Kansas as a honey-producing state in the future will, in our judgment, make rapid strides. If this little note finds its way to the readers of GLEANINGS, Kansas may be heard from again.

The writer handles some 40 colonies of bees as a matter of recreation, as it were, from the more confining duties of office work.

Garden City, Kan. B. F. STOCKS.

[There has been not a little said in these columns concerning beekeeping in Kansas, especially in regard to sweet clover, which has begun to make its way on the uplands where alfalfa could not be profitably grown. In late years alfalfa and sweet clover both have been making rapid headway over the state, and naturally with them go the keeping of bees. It is but fair to say, however, that conditions in and about Garden City are probably more favorable than in most portions of the state.—ED.]

Where the Moth does Not Corrupt

Under "Care of Comb Honey," page 11, Jan. 1, Doolittle advises storing honey at a temperature of 80 to 95 F. He says, "The supers of sections should be separated so that the warm air can circulate freely all through."

Now, he undoubtedly meant that this wide-open exposure of the supers to get all possible ventilation should be done in a moth-proof room, as otherwise the wax-moth, ever on the alert, would soon create havoc with the exposed sweets. But he does not say so, and I fear that, unless warned, some of the uninitiated may not think of this danger, and suffer thereby.

My own plan for keeping comb honey in hot weather that I have found very successful and inexpensive is this: I pile up the supers of honey anywhere in the honey-house, with a double thickness of burlap between the supers, supplemented with a sheet or two of newspaper over the burlap. The newspaper takes the drip, if any, from the super above, and obviates a "mess." I am always careful to pile up supers of the same size together, that no little space be left open anywhere that would admit that very sleek and slippery hunter Mrs. Moth.

From time to time I examine my supers of honey thus stored for a stray worm or two that may have hatched from eggs deposited while the super was on the hive.

Manawa, Wis. E. E. COLEN.

[In most well-regulated apiaries in the North, especially where pure Italians largely predominate, the bee-moth is almost entirely unknown. Supers of comb honey under these conditions can be stored as Mr. Doolittle directs. Where, however, black bees are pretty common, we may also expect bee-moth. This is particularly true in many parts of the South. It is then that the supers should be protected.—ED.]

46 Swarms from 29 Colonies

We have had a fairly good season, and the bees are now working lively, but my crop of honey will be very much reduced on account of excessive swarming. I have had 46 swarms from 29 colonies. Last year I had only four from 31 colonies, which, as you will see, was quite a difference from this year's swarming. I have even had a second swarm from one of this year's swarms hived in a ten-frame chaff hive—something that I never had before—and the said hive is now literally boiling with bees again. One colony that did not swarm this year is now working in the fifth super. This is the best that I have ever seen for building up colonies. We are now having a grand rain—in fact, we have had plenty of rain for the past two months and a half; and if the rains continue I may yet have a record year notwithstanding so much swarming.

Glyndon, Md., July 15. WALTER E. ATKINSON.

Kerosene to Stop Robbing

We noticed on page 648, 1914, Mr. Plummer's plan to stop robbing. We tried a similar plan a few weeks ago in our queen-rearing yard. Excessive rains daily for three weeks left all colonies and

nuclei on the verge of starvation, and they had to be fed until favorable weather permitted the bees to gather nectar.

All queen-rearing nuclei and some of the stronger colonies were being robbed as soon as we put on the feeders. After spraying kerosene on the alighting-boards and entrances, leaving enough space unsprayed for the bees to get in and out, we inserted a Porter bee-escape in the entrance of one nucleus without spraying kerosene. In less than 24 hours nearly every robber bee was caught in that one nucleus, and they stayed there, too, defending the new home from the few stray robbers that were left. All colonies and nuclei that were sprayed with kerosene were not bothered, the robbers just hovering around a minute or so.

The odor from the kerosene kept the bees in the hive for a time, but they seemed to defend themselves much better, probably on account of the number of robbers being diminished. No need to use hay or grass. We simply reduced each entrance to one bee-space. We have used the above plan several times since, and it proved successful in each instance.

New Albany, Ind. WALKER & MARZIAN APIARIES.

[Kerosene has been mentioned before as a preventive of robbing. We should, however, be a little careful about relying on it. Where robbing is badly under way it would probably not have very much effect. From reading your letter we are more inclined to think that your bee-escape robber-trap caught all the robbers and therefore stopped the robbing, and not the kerosene, for the simple reason that there were no robbers at large to annoy the nuclei.

One of the most reliable and effective means to stop robbing is to use the robber-trap. Usually not more than one or two colonies are involved. Remove the robbed hive and put the robber-trap in its place. In fifteen minutes all will be as quiet as if nothing had happened. We would place more reliance on the robber-trap than on kerosene, although we know the bees do not like the smell of it; and a little sprinkling at the entrance has a tendency to drive away intruders, while it does not necessarily keep out the inmates of the hive.—ED.]

A Virgin Queen Leading a Swarm Out and a Laying Queen Remaining in the Hive.

Something occurred in my apiary that I never heard of before. I put a queen-cell in one last week and looked for her yesterday. She was laying well, when in about three hours a fine swarm came out. I wondered what was the cause. After the swarm had settled I looked in the hive for queen-cells and found the laying queen in the hive. I looked on the swarm and I found a virgin queen which I caged. In a few minuutes the swarm came back to the hive.

I was always under the impression that the laying queen always led the swarm out. What was the cause of the two queens in the hive, one laying and virgin leading the swarm out?

Roanoke, Va. HENRY S. BOHON.

[There must have been another cell in the hive that you overlooked when you supplied the colony with a queen-cell. The one you furnished was probably older, and hence hatched out first. The younger cell, shortly after, hatched its virgin; and when it went out to mate the bees went with her, the laying queen remaining in the hive. As a general rule, however, the laying queen would have gone out with the virgin also.

It is not true that the old queen is always the one that goes with the prime swarm. When cells are due to hatch, the swarm will usually issue, and with it the laying queen. A second swarm might have several virgins, provided they were in the hive; and a third swarm might have also one or more virgins from cells hatched later. There is no invariable rule about swarming.—ED.]

A Late Indiana Report

I have kept bees for twenty years, and have never seen a year here like this. It was so cold and wet in early spring the bees missed the early flow, so they have been on the edge of starvation ever since. I have been feeding twenty-eight colonies for six weeks. The young larvæ starved in colonies extra strong.

Our main flow is from the bluevine, which is just coming into bloom. But it is raining almost every day, washing all the nectar from the bloom. White clover looks promising for next year; but it seems to bear no nectar, neither does the alfalfa in this locality.

I must mention a large colony taken from a tree Nov. 9, 1914. I did not get the comb nor the honey—only the bees. They were hived in a Danzenbaker super containing cull sections of honey gathered from white asters, half of it unsealed. The bees wintered nicely out of doors and built up earlier in the spring than the rest of the colonies. Do you think the fence separators were of any benefit in wintering? I am inclined to think that if we would remove two combs from our brood-chambers and place a slatted fence between each comb for winter it would be better for localities where dysentery causes trouble.

Bloomfield, Ind., July 10. JOHN M. WOOD.

[There is probably no merit in fence separators for wintering, beyond the fact that they separate combs a little further apart, thus giving a little better clustering room between the combs. It was formerly the common practice to separate the combs a little further apart just before packing for winter; but that practice has practically disappeared. The tendency nowadays is to let the colony alone. Too much tinkering with nature is sometimes disastrous.—ED.]

Hitting the Vital Spot

I have read in GLEANINGS and other papers that bees cannot sting each other except in certain places. I am sending two bees. Upon examination you will find that one of them has stung the other in the middle or second joint of the front leg.



The bee on the left was killed by a sting in the second joint of the front leg.

A friend brought the bees to me, and said that he saw the bee sting the other, and that it killed it almost instantly.

Bristol, Tenn. A. H. GOODMAN.

Sweet Clover, 70 Acres; Buckwheat, 20 Acres

We have 12 acres of sweet clover this year, and we sowed 70 acres this spring.

I am mostly an orchardist, but I take care of our bees. I think horticulture along beekeeping lines is bound to be developed to some extent in a practical way some time. At any rate, I am quite interested in some honey-plants. We had ten acres of Japanese buckwheat last fall. We got no surplus, but all hives were filled. It seemed not to yield honey very well. We got 25 bushels per acre, and 90 cts. per bushel, which made it our best crop last year. We have just sowed 20 acres this summer.

Danville, Iowa, July 7. WENDELL P. WILLIAMS.

A. I. Root

OUR HOMES

Editor

Apply thy heart unto instruction, and thine ears to the words of knowledge.—PROV. 23:12.

Buy the truth, and sell it not; also wisdom, and instruction, and understanding.—PROV. 23:23.

Mr. James G. Gray, who was for many years foreman of our manufacturing establishment, died early on the morning of July 15; and I think it may be interesting to the readers of GLEANINGS to go over with me the events of a busy life that ended only in death in the 85th year of Mr. Gray's age.

Our readers will pardon me *once more,* if, in order to make this a continuous story, I repeat, or partially repeat, some things that have been given already on these pages. I was perhaps eight or nine years old when Mr. Gray came to Mogadore, Summit Co., Ohio, to teach penmanship and ornamental drawing. I think he was about eighteen at that time. His wonderful penmanship created a stir in our little town, and his ornamental drawings *were* a wonder. In fact, people would have been tempted to say *he* did not do it himself were it not for the fact that he would take almost any pen or any paper, and astonish the natives in just a few minutes. I have forgotten what the tuition was for learning to write; but the ornamental drawing cost, if I remember correctly, about $25. He soon had quite a class in penmanship, and those who took lessons would, if still alive, show it in their hand-writing up to this day. He was so well liked, in fact, that when winter came so that it was too cold for him to travel easily, he was engaged to teach the Mogadore high school; and, of course, the same beautiful penmanship was taught in the common school. At that time I had just got hold of the book "Conversations on Chemistry," and also Parker's Philosophy. This was before I went to Wellsville, as mentioned in a former paper. One evening after school our teacher said something like this:

"Amos, you have some home-made apparatus with which you are making experiments, I gather from what you have said in your recitations. Now, if you do not object I will go over this evening to look over your apparatus; and if I can help you in your experiments I shall be glad to do so."

Let me now digress a little. There were just two in our family of seven who seemed to have a particular liking for books. One of them was myself and the other was a sister some older than I. In fact, she was so diligent in her studies that a small district school out in the country was offered her, when she was only fifteen (and wearing short dresses); and so far as I can recall she taught it very acceptably.

Well, of course I had my rude home-made apparatus and chemicals all ready for Mr. Gray when he came to make the visit; but something on a different line caught his attention before he gave me much notice. It was the bright young schoolma'am; and I remember telling my mother, almost dolefully, that I did not believe Mr. Gray cared so much about chemistry after all, for he kept talking to the young schoolma'am. By and by, however, he gave me his whole attention. I had been trying to make a pneumatic trough for handling gases; but my arrangement leaked in spite of glue, melted rosin, etc. In some way I had found out that Mr. Gray was a carpenter as well as a writing-teacher and schoolteacher. If I remember correctly, his parents sent him to Oberlin to school, but later on they found he was spending more time in a *chair-factory* near by than he was in school; but when they discovered he had become quite an expert carpenter, even at that early age, they did not feel so much troubled about it.* My father was also a carpenter, as I have told you, and had a chest of tools. When Mr. Gray looked at my leaky trough I said to my teacher, "Do you suppose you can make a wooden box like this, and make joints so tight it will not leak, even if there were no cement on it?"

At this he glanced toward my father, with a quizzical look on his face, and they discussed the problem of making a wooden box that would not leak. My father opened his tool-chest, and Mr. Gray selected a smoothing-plane, sharpened it up according to his notion, and made the box with a shelf to hold my glass bottles and jars; and when I poured it full of water it did not leak a drop. How many carpenters of the present day are equal to such a problem? A year or two afterward, when Mr. Gray married the young schoolma'am, there happened to be an "electricity show" at the same hour of the night the wedding occurred. When my mother and sisters said I must stay and be present at the wedding I became rebellious. The idea of anything preventing *me* from attending an "electricity show!" I think they changed the time of the wedding so as to come a little earlier or later. About this time an older brother of mine was plan-

* This was before the world thought of carpentry and growing corn and potatoes as one of the branches of a common-school education.

ning to attend a dancing-school. Mother and father, of course, objected; but he quoted this, that, and the other who were going to that school, and there seemed to be no way of settling the matter until the son-in-law said, "I think I can persuade Marshall to give up the dancing-school. I will give him lessons in drawing." In a little while my brother was so much taken up with his progress in writing, and later in ornamental pen-drawing, that he forgot all about the dancing-school. In fact, when he was a boy in his teens he went out teaching penmanship, and gained quite a little money thereby.

From first to last Mr. Gray has been a friend and helper in the Root family. In fact, he accomplished many things besides what I have narrated that no one else could have brought about. When I became interested in poultry he advised me, in order to find out whether it paid or not, and how much it paid, to keep double-entry bookkeeping. Make the chickens debtor to everything purchased for them, and give them credit for every egg laid. I was delighted with this orderly way of doing business, and I think the biddies must have been "delighted" also; for before the year was ended everything had gone over to one side of the ledger. The chickens paid all expenses, paid for themselves, and paid for their poultry-house and for their poultry-yard.

When I commenced "lecturing," Mr. Gray invited me to come out to the "Black Swamp" in the western part of Ohio (where he was running a sawmill), and *educate* the people round about in chemistry and electricity. I have alluded to my ups and downs in my lecturing-tours. When it came toward winter Mr. Gray suggested that I should stop traveling during the winter months, and teach a school in their neighborhood. Let me digress right here to mention an incident in Mr. Gray's school-teaching:

In our Mogadore high school, at the time of his visit, there had been much trouble with incompetent teachers. They could not preserve order. If the master called one of the big boys to come up on the floor he would not go; and when the master tried to enforce his command by catching hold of the unruly pupil the boy would hang on to the desk until the master would have to give up. One day Mr. Gray called on a good-sized boy to step out on the floor because of disobeying some of the rules of the school. When the boy did not come, Mr. Gray took him by the collar and pulled a little. As the boy seemed to be pretty well anchored, as usual, Mr. Gray seemed to hesitate, and then there was a titter among the rest of the pupils, all thinking the new teacher was "up a stump," like his predecessor. But all at once something happened; and it was done so quickly that it seemed like a sleight-of-hand performance. Before anybody knew how it came about, Thomas was on his back in the middle of the floor, and piteously promising to be good and behave himself if given another chance. By the way, for Thomas, who was always so neatly dressed, and had his hair combed so nicely, it was a rather severe shock to find himself in such disorder on that old schoolroom floor, none too clean at best. From that time forward Thomas was one of the best and most obedient boys in the school. When he went away, Thomas said he was not only the best teacher, but that he had learned more from Mr. Gray than from any other teacher in his whole life. Here was a practical illustration of the old proverb, "Foolishness is bound up in the heart of a child: but the rod shall drive it from him."

Well, now, let us go back to the Black Swamp. When my brother-in-law urged me to give up lecturing and go to teaching school I objected; but when he told me that the weather here in northern Ohio would make me trouble, and be bad for my health at my early age, I listened. He said, "Amos, if you just drop lecturing until spring, your school money will furnish you means in the spring to go on lecturing for *quite a long while*. You see you will have quite a little money laid up for a rainy day, etc.*

To make this story brief, when I first planned our hive factory, in 1878, and was thinking about a brick building near the railroad, my first thought was that Mr. Gray could better plan the building and take hold of the manufacturing business than anybody else I knew of in the world. At that time he was in northern Michigan; but I solicited him to move back to Medina and take charge. For many years he was general foreman. He not only superintended the construction of our first brick struc-

* When he applied to the directors for the school out in the Black Swamp, and they learned my age, they made the objection that I was too young. The boys in that particular school had turned the teacher out of doors several winters in the past. Mr. Gray assured them that there would be no such thing as putting *me* out of doors, even if I was but eighteen years old; and, in fact, some of the big boys did undertake it; but I have told you in a previous Home paper that their plans did not work. I do not know but I told the boys they might carry out my body, but not while there was any life remaining. But there was not any "dead body" in the fracas; and after the directors met to consider matters they hired me for another month longer just *because* I refused to be dethroned.

ture,* but planned building after building as the years passed and the business increased; and he gave up his place only when he had become too old too assume so much responsibility; and till within only a few months back, with only slight intervals, he has been connected with our institution more or less ever since. Even during the past winter he has usually put in half a day's work in the factory, employed wherever nice mechanical woodwork was needed. He has always been a very busy man. Carpentry and fine woodwork seems to have been his special forte. He has built many dwellings, several automobile garages, and his wonderful skill in ornamenting various structures seems to have been his peculiar gift since the time when he did such wonderful work with his pen when but a boy.

Now for my closing incident. All through the life of our departed relative he was a remarkably *busy man.* He could never be idle a moment; and besides that he had a peculiar and wonderful skill to take hold of and improve everything he touched. Between 65 and 70 years ago it was quite the fashion to make pictures and mottoes on perforated paper. By using different kinds of bright-colored yarn, which I believe they called "crewel," at that time, some beautiful needlework was done by the women folks, and it was really very pretty. Mr. Gray happened to be in to see my sister one summer evening, and found her at work on some perforated paper. He picked up a scrap or strip of the paper that had been cut off; and, selecting his variously colored crewels, he worked out in a little time, in beautiful, colored ornamental letters the following:

Thine till the heart in death is cold.

He gave it to my sister, and she put it away, evidently considering it too sacred to be shown to anybody, unless, perhaps, to her mother. But I happened to go into her room one day, and before I could find what I wanted I came across this piece of ornamental lettering. It just hit my boyish fancy. There was a little golden-haired girl who lived near us, and I often used to see her as she went down to the spring at the foot of the hill to get a pail of water. I made up my mind that if my sister would *lend* me that piece of work I would make one like it or at least *try* to make one like it (in due course of time—of course not right away), for the girl who used to come down the hill swinging her sun bonnet in one hand while she carried the tin pail in the other.* But my day dreams were suddenly interrupted by the entrance of my sister who gave me a scolding for invading her treasures without permission. When my mother interceded, however, I was permitted to try to make a copy of the precious piece of work; but my copy never came anywhere near the original.

When I this morning saw that lifeless form cold in death, memory ran hastily back to the time when the bright young teacher, full of life and energy, patiently wrought out that gift especially for his betrothed, "Thine till the heart in death is cold."

Mr. Gray united with the Congregational church when a boy in his teens, and was still a member at the time of his death.

THE GREAT ARMY OF UNEMPLOYED; GOD'S KINGDOM IS COMING.

I was particularly impressed with it this morning while reading an article in July *Successful Farming,* of Des Moines, Iowa, entitled "Our Government: what it is Doing, and How." I earnestly wish that every one of you would send and get the July issue of that paper and read that one article. It was a happy surprise to me to learn that our Government has not only taken care of the unemployed, but is sending to farmers all over the United States exactly the men needed as far as possible; and it does this, too, without a cent of pay on the part of the unfortunate man who is without work or the farmer who wants help. Those who apply for employment are put through an examination to see what they are good for, and to see if they really *will* work. As an illustration:

A farmer from away out west wrote and told just what sort of man he wanted. The Department wrote him that they had a man who would suit him exactly, except that he was a Russian and could not speak a word of English. He wrote back, "Send him on." When the farmer got to the train the Russian said "Good morning" to him, and, to his further surprise, he could talk quite a little English. How did it happen? Why, the Government gave him

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*Those who have visited our plant here in Medina will have noticed the beehive on the front of the first brick structure. Above the hive are the words "In God we trust." It was at Mr. Gray's suggestion that a hive carved out of a block of sandstone should adorn the front. There was some talk about a motto to be placed above it, something like

"How doth the busy little bee
Improve each shining hour," etc.

But I finally decided to have cut in the sandstone, above the hive, the words "In God we trust." Mr. Gray drew the letters on the stone for the mason to cut out, and I hope the managers of this industry for generations to come may, at least once in a while, glance up to that inscription and manage this business in a way that all the world may see that we are living up to our profession.

*Of course this was long before I first saw Mrs. Root.

a little book with red-ink phrases such as he would most need to use in English, and an explanation in his own tongue. He studied his little "dictionary" all the way on the long trip, probably talked with the passengers as well as he could, and that is how it came about. Well, now, here is the best part of the little story:

The farmer who agreed to pay him a certain price raised his pay the first month; more the second month, and so on. Why, it was worth a whole lot to have these two good men brought together. His learning to speak English impressed me vividly with my experience in learning to speak Spanish when down in Cuba.

Now send for that article and read it through. It will increase your faith in our Government, and increase your faith in the fact of what I am telling you, that God's kingdom *is* coming.

HIGH-PRESSURE GARDENING

SPINELESS CACTUS—WHAT OF THE FUTURE?

I suppose I shall meet with some criticism because I think best to give so much space to the spineless cactus, especially since the Department of Agriculture and the experiment station of Florida do not at present give very encouraging reports in regard to it. When I first saw Kidder's circular and price list in regard to the spineless cactus I decided some of the statements should be received with caution; and while I feel to a certain extent the same way yet, I think he and others like him often do great service to agriculture. His circular and his letters suggest a certain comicality that is contagious. As an illustration I submit below a portion of a letter just received; and I have taken the liberty of giving the letter just as he wrote it, "short cuts" in spelling, and all.

My dear old friend:—Apologizing for the long delay, I have been greatly overburdened with bizness and correspondence. I thank you for your kind letters and interest, and copy of GLEANINGS. I have enjoyed looking it thru instead of reading it thru, bekawz I don't have time to read anything thru lately, and my table is piled hi with unlookt-thru books, magazines, and papers. Yet I enclose $2.00 check, for which please send me GLEANINGS beginning with the August number and also a Luther household grinder. My family will enjoy it anyway, and may be I will have a little more leisure time too to look it thru more carefully. My eye caut the letter from your good kind Christian friend Henry Borchers, of Laredo, Texas. My! I wish my naborhood was full of such men as that. I also appreciate the joke about the reward your wife gave you for sharpening up her paring-knife, and I presume my wife will reward me quite as handsomely—she frequently does.

Yes, I saw the criticism on spineless cactus in the papers you mentioned, and it caused a perfect avalanche of inquiries to slide on to me, and also the loss of hundreds of dollars' worth of orders. I have, therefore, prepared an article on spineless cactus for publication, which you are at liberty to quote or publish in whole or in part if you wish.

I certainly shall be delighted to have you call and see me at any time it is convenient for you to do so; but I am afraid I cannot supply you with any cactus fruit yet awhile, at least not until late next fall, as I am constantly cutting my plants back to fill orders.

I don't think *I* have made any extravagant statements in my circulars which are not true. I have quoted some quite extravagant-sounding statements from *other people*, however, and presume those are the ones to which you refer. Yes, certain varieties grow better on rich soil than on poor soil. I have never written any different opinion, but you seem to have misunderstood me there.

Monticello, Fla., July 29. SAMUEL KIDDER.

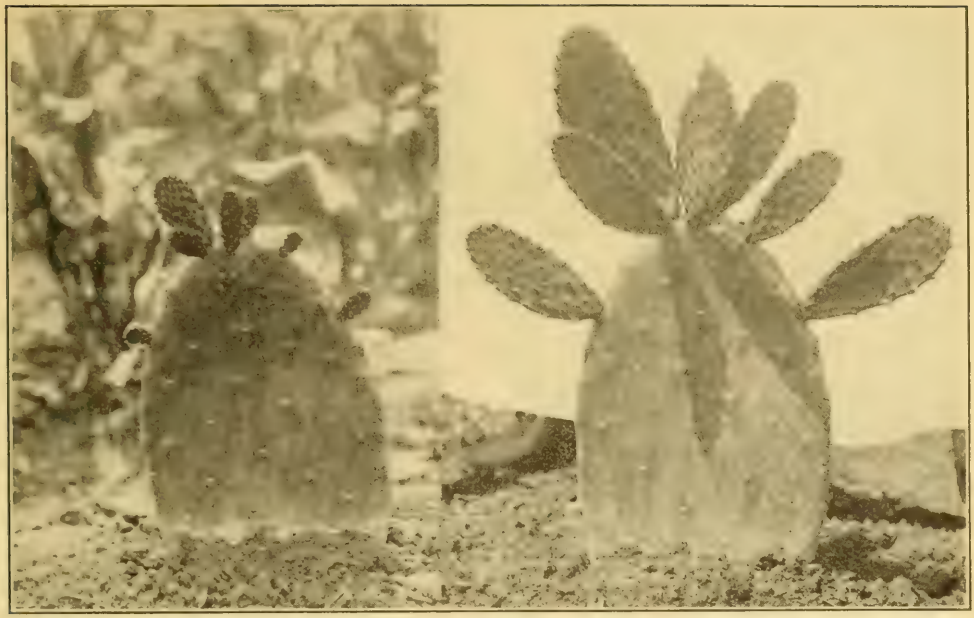
What gave *me* enthusiasm down in Florida was the astonishing growth of the cactus in just a few days. Well, right here in Medina I am having the same experience. A couple of pictures on another page will show you the growth made in just nine days; and the funny thing about it is that we have had rains about every other day (or oftener), while the cactus made this growth in a heavy clay soil.

Mr. Kidder's booklet, which I advise all to get and read (as well as look at the half-tone pictures), suggests that the cactus plants will take the place of the silo in Florida and other southern states. You can plant it any day in the year, and harvest it any day in the year—that is, the kind for forage. I think one of the government reports gave as a reason why it could not be of any great value was that it is "almost all water." Here is a clipping from Kidder's circular in regard to the matter:

The erroneous statement that there is "too much water" in spineless cactus to make it a desirable and practical food, "especially in Florida where water is so plentiful"* (ha! ha! ha! it makes me grin to think of it), was recently made by a hitherto supposed-to-be-wise old guy. He evidently must have been dozing for the moment or else forgot the days of not so long ago when mother first saw the pictures of tomatoes in the catalog and wanted to try some; but father said, "No, I've read in the newspapers that those things are *poison*, and will give you a *cancer* if you eat them. Besides, the professors say they are of no value, as they are almost all *water*, anyway."

Suppose they *are* almost all water. Below is a table that friend Kidder submits of

* The expression, "where water is so plentiful," gave me a good hearty laugh, and I laugh again as I think of it. "Plentiful"—I should think so. When it is raining close to a foot in 24 hours it well might be called "plentiful."



THE CACTUS SLAB MENTIONED ON PAGE 646 OF THE LAST ISSUE OF GLEANINGS.

This slab was planted in our Medina garden about July 1. The picture on the left hand was taken July 26, and the picture on the right was taken just nine days after. With the first picture you will notice some corn in the background. The next time, in order to show the new slabs (or leaves) to better advantage, I held a white sheet back of the plant. This astonishing growth was made in common clay soil; and I think it demonstrates beyond question the wonderful growth this plant *may* make under favorable conditions. We expect to give another picture in our next issue.

some other things that are "almost all water."

Milk	87.5	Oranges	87
Grapes	87	Apples	83
Spinach	90	Pineapple	89
Lettuce	94	Asparagus	94
Tomatoes	96	Squash	95
Strawberry	90	Pumpkin	94
Peaches	69	Cornstalks	80

And while we are discussing this, let me mention that, years ago, when we marketed Jersey Wakefield cabbage every day, on purpose to use up trimmings from the cabbage I got some little pigs. Now, these pigs did not have a thing—not even a bucket of water—in addition to the cabbage leaves. We almost covered the little fellows up with cabbage, and the pigs made a tremendous growth. An account of it is given in our book "What to Do," etc. You see the cabbage was provided fresh every day in the week; and when we grow cactus for cattle, horses, pigs, or chickens it *also* can be furnished fresh every day in the year.

CACTUS FRUIT, QUANTITY AND QUALITY, ETC.

I have seen just one real good tuna (cactus fruit). I found it in the road near Sebastopol, Cal., where some one had dropped it, evidently by careless handling, and it was near the Burbank ranch. My own cactus plants, from slabs which were put out in the spring of 1911, gave me 48 tunas that were the size of medium oranges. I saw larger ones in Burbank's gardens at Santa Rosa. The quality was good; but the taste was different, somewhat, from anything we were used to eating, so we did not become enthusiastic over them, while at the same time we liked them fairly well. Here we have so much good fruit that we are thoroughly accustomed to eating *that we are poor judges of a fruit of entirely different character.* The one tuna I spoke of was very ripe, a little wilted, and tasted as good as a prime fig or nice berry jam; *in fact, sweet and delicious;* however, I look upon the tuna as a better feed for fattening hogs than for human consumption. The cactus plants, *I am told,* become full bearing when about five years old.

At Mr. McCubbin's, over at Reedley, the three acres of cactus of three years' growth have not produced any large crop, but they have borne an increasing crop each year. He has about 20 plants five or six years old that he has pruned severely each year for cuttings that give a good quantity of fruit in spite of the severe pruning, since only last year's slabs will produce fruit this year, etc. All varieties (120 of them) bear fruit, but only a few are good for human consumption. You can get the whole history of the opunta from the U. S. bulletin, Department of Agriculture, Washington.

Selma, Cal., July 8. O. S. DAVIS.

Here is something further from friend Woodberry relating to the matter:

Mr. Root:— Regarding the fruit of the cactus, I fear it would be impossible for me to acquire a liking for it; but the Mexicans esteem it quite highly. I have not noticed it on the fruit-stands, yet it may be on sale in some sections of Los Angeles. I will send you some ripe fruit later on, and you can judge for yourself.

Glendale, Cal., July 11. G. B. WOODBERRY.

THE ST. REGIS RASPBERRY.

Just after I got back from Florida (I think it was about May 10) I sent to W. N. Scarff, New Carlisle, Ohio, 25 cents for three plants of the St. Regis raspberry. I was induced to do this because the card declared they would bear fruit the first season. It is now July 29, or about 80 days since the little plants were put out in good ground. By the way, instead of sending me *three* plants for the 25 cents, as advertised, I received *six*. They were only a few inches long, and it was some days before the entire six really started to grow. Perhaps it was June 1 before they really got to going. Well, it has been one of my happy surprises to see them put out bloom, and now every one of the six little bushes is pretty well loaded with berries; and they are about the largest red raspberry I ever saw. I have been disappointed so many times in new things extravagantly written up that I do not know but I was beginning to lose faith. But here is a beautiful fruit right before my eyes, only 80 days from planting. I wrote Mr. Scarff how well pleased I was with the new raspberry, and he replies as follows:

We are very glad you are pleased with the St. Regis. We have just finished picking a fine crop of berries from plants of the St. Regis set last spring. It is certainly a fine berry. They will rest up now for a short time, but will again begin to bear about Sept. 1 and continue until Oct. 15 to 20.

New Carlisle, O., July 26. W. N. SCARFF.

Perhaps I should mention the fact that one reason for my good success is that the six plants stand where there was a small poultry-yard for two or three years. Red raspberries are selling now in our market for 20 cents a quart. This is a day and age in which we want returns quick. Do you know of any other fruit or berry where you can reap a harvest in 80 days from the time of planting?

SWEET CLOVER; THE GOOD THINGS ABOUT IT NOT YET ALL TOLD.

We clip the following from the *National Stockman and Farmer:*

EXPERIENCE WITH SWEET CLOVER.

So much has been written both for and against sweet clover, also of its uses, that it would seem that all has been told.

Such is not half the case. Its evils are none that I know of, and I have known it for many years. It may become a pest when it runs wild, but a blessed pest it is—more blessed than bluegrass or any other plant I know of that has the ability to run wild and be useful. As a soil-builder it has no equal. More than fifty years ago the Panhandle railroad was graded along by Raccoon Station, and a deep fill had to be made to the approach to the trestle over Raccoon Creek. To get dirt enough for the deep fill they stripped off all the soil down to the solid rock, this stripped area being about five acres in extent. A school-house was built on this bare rock, as many readers of *The Stockman* may remember. In some unknown way the seeds of sweet clover got into the cracks of this rock. This was about thirty years ago. The rock being exposed began to soften on the surface, and the sweet clover spread over the entire area, as well as all around it. I was along the road about ten years after the sweet clover came. The schoolhouse was gone, but the growth of sweet clover was simply immense. Then I began to dig in the newly made soil, which was fully five inches deep, and the rotten rock under the soil was deeper, and was filled with the clover roots that were fast breaking up the underlying rock and making it into new soil.

It is said that sweet clover must have an abundance of lime; but this rock did not have much lime in it, as it is what is known as the Connellsville sandstone.

In many other places I have seen fine sweet clover growing where no limestone was to be found, yet it does far better in a good limestone soil, or a soil that has been well supplied with lime.

The good qualities and many valuable uses of sweet clover are too numerous to mention. Its nutritive qualities are superior to alfalfa, and it is eaten just as greedily after stock of all kinds has learned to like it, which is not very long. Its earliness exceeds all other plants, even rye. This day (April 10) the young sweet clover is over two inches high, and the frost has not been out of the ground over one week, and you just ought to see the chickens eating it. They pasture right on it all summer and fall, as it stays green till killed by hard freezing; then the seeds begin to fall, and the hens just scratch and pick up seeds from dawn till dark. I am safe in saying that an acre of sweet clover will produce more chicken feed from the seeds than an acre of wheat or corn, and fowls will pasture on it all the growing season, and still be making the ground richer. At the same time the bloom will produce from three to five dollars' worth of the finest honey.

Sweet clover is also a great sub-soiler and an underdrainer. I have measured roots that were an inch and a quarter in diameter, and often from three to five feet or more in length. These long roots are of untold economic value in their process of plowing, draining, and fertilizing the sub-soil.

At Downeyville, in Butler County, Pa., there was a swamp of two or three acres along the creek. After the railroad went through, sweet clover got a hold in it, and in five years that swamp was drained; the roots had pierced the subsoil and let the water down into a lower stratum.

There are three species of sweet clover on the market. *Melilotus alba* is the largest and best. It has white blossoms. *Melilotus indica* is small, lives only one summer, and is of very little value east of California. It has yellow blooms.

Jefferson County, Pa. GEORGE HOUGH.

Permit me to call attention to the statement that it furnishes the best of feed quicker than any other clover or any other plant grown on the farm. In corroboration of this I may say that just across the street from our home is a field of sweet clover on this 13th day of May, knee-high, and growing as thick as it will stand. The seed was sown with oats a year ago, and near this sweet-clover field is a field of crimson clover and also rye; but the sweet clover certainly furnished good feed away ahead of any of the others. I was particularly interested also in the statement about an acre of sweet clover for chicken feed. It seems to me

statement is at least exaggerated unless we take into consideration its value as green feed as well as the value of the *seed* for chickens.

THE DASHEEN AND ITS PRESENT STANDING.

I have before expressed surprise that none of our northern seedsmen, who are supposed to be on the lookout for everything new pertaining to the garden, have never made any mention of the dasheen. Just now, however, the Henry Field Co., of Shenandoah, Iowa, has given it a place. Below is something clipped from the *Country Gentleman* in regard to it:

PROGRESS WITH THE DASHEEN.

Ever since the Federal Division of Foreign Seed and Plant Introduction began its experiments with the dasheen this West Indian crop has proved itself well worth care. In 1909 the Department recorded a South Carolina planting of dasheens that yielded at the rate of 400 bushels to the acre. Since then from less than five acres on the Department's testing grounds at Brooksville, Florida, 1400 bushels of dasheens have been harvested. From other plantings in Florida and Louisiana as much as twenty-two pounds of dasheens has been harvested from single hills.

In addition to the Florida, Louisiana, and Carolina crops, the dasheen has been sucessfully grown near Norfolk, Virginia; in Southern California, and near Ray, Arizona. It promises well for use in irrigated sections of the semi-arid Southwest.

It would seem that the Department's success with dasheen plantings fits in admirably with the new Southern campaign for crop diversification. Not only does the dasheen promise well as a market crop once the public generally has recognized its merits, but in the meantime it is capable of furnishing food for home consumption. Its food value is higher than that of the potato. The dasheen contains less water than the potato, and about fifty per cent more protein and fifty per cent more starch. The flavor of the dasheen is decidedly richer and more tempting than that of the potato.

Robert A. Young, of the Department, says that in more ways than one the dasheen outdoes the potato.

"It can be grown as a summer crop in a region where the potato must be grown almost entirely as a spring crop," he argues, "for it ripens its tubers in October and furnishes them for the table at a season when northern-grown potatoes have to be shipped in.

"The young leaves, properly cooked, can be substituted for spinach The branched shoots, obtained by forcing dasheen corms in the dark, constitute an entirely new product. The nutty flavor of the tubers gives them a peculiar palatability."

The larger tubers are ground into flour, which is used for soups and gruels, and is mixed with wheat or rye flour to make griddlecakes, biscuits, and bread.

At present the dasheen appears to be no more difficult to keep in storage than the sweet potato, but will usually keep well if stored in a dry place at a temperature of about sixty degrees Fahrenheit.

We are also told that the Department of Agriculture has recently issued another circular concerning it. Although the dasheen is still mostly confined to the South, yet I might say we are now growing our third crop here in northern Ohio, and I feel more and more satisfied that it can be grown profitably all over our northern states; and it will ultimately prove to be one of our most nourishing and toothsome vegetables.

DASHEEN IN ALABAMA A SUCCESS, ETC.

Last year the two bulbs of dasheens that we received from you were planted and cared for carefully and this spring we had over one hundred bulbs to set out, besides some to give to our schoolchildren and neighbors to try. We are in the backwoods here, and people are much interested in the modern method of handling bees. Some time I will write you of the work we are trying to do along the line of missionary work, as I know you will be interested. Your last magazine has just arrived, and wife immediately laid aside all work till she had glanced over your article.

Semmes, Ala., May 18. C. D. GRIFFIN.

STRIPED SQUASH-BUGS—A SURE REMEDY FOR THEM.

As a rule, chickens and a garden do not go very well together unless one or both are inside of a chicken-proof inclosure. But there are exceptions. Listen to the good brother below:

Friend Root:—I have just been reading in GLEANINGS of your troubles with the striped cucumber-bug. Prior to this year I have tried about all the remedies ever suggested, and failed generally. This year, just as the melons and cucumbers were coming up, I took an old hen and about twenty day-old chicks, put the hen in a coop, let the chicks all run at large in the patch, and in a few days the bugs came "a plenty;" and what those chicks did for them was "a plenty" also. And grow? I never saw chicks do better. When they began to scratch I moved them out and put in younger ones. This scheme worked for me, and I pass it along for what it is worth. I might say, with things in this shape I slept all right at night and went to church on Sunday. CYRUS H. CLINE.

Mt. Solon, Va., July 23.

Many thanks, friend C. If I hadn't been stupid I should have thought of the hen and chickens before; but knowing that chickens will not eat the common potato-beetle I did not feel sure that they would eat the striped squash-bugs. The next point is, to be sure to have the chickens on hand when needed. I have been telling you that when you set a hen you should plant some radish seed so as to have it ready for greens. Now we shall have to say, also, when you plant your squashes you should set a hen or two hens, and then you can all go to church. This reminds me that another brother had trouble with the bugs as well as myself. Read what he says:

Mr. Root:—For a number of years I have used a powder made of equal parts of slacked (dog) lime and stovewood ashes. After being dusted the plants look a little dull and dry, but the powder soon scales off, and the plants look healthier, brighter, and get a stronger growth than before. I have used this powder to drive away yellow striped bugs from pumpkin plants, melons, etc., with good success, and prefer it to any other remedy. Try it on one plant, and I am sure you will use it on all you have.

Elgin, Iowa. E. H. OSTGOOD.

POULTRY DEPARTMENT

GROWING YOUR OWN CHICKEN FEED INSTEAD OF BUYING IT, ETC.

I remember once hearing a small boy say to a merchant, while standing in his store and looking at the fine array of goods, something like this:

"Mr. Brown, if you did not have to pay anything for your goods, wouldn't it be fun to keep store?"

Well, I have been many times thinking what fun it would be to keep chickens if we did not have to buy food for them; and while off on the island of Osprey, I had a neighbor who had a small flock of chickens which they did not feed a thing. The poultry had the run of the whole island, and my neighbor got quite a few eggs. Of course he did not have very many chickens—perhaps fifteen or twenty.

Well, since wheat has been away up out of sight I have been wondering if I could not grow feterita and other things so as to avoid buying expensive grain down in my Florida home. Of course we do grow our own chicken feed here in Ohio—that is, we grow both corn and wheat to sell. I might ship some down to our Florida home every fall; but the transportation would make it cost more than to buy it there at the great warehouses. Well, now, here is a clipping from the *Florida Grower* that hits the very point we are discussing.

DADE CITY, FLA., July 25, 1915.—In reading the letters published in the *Grower* I see numerous inquiries as to what can be grown here in South Florida for chicken feed. Now, I am in the poultry business, and finding my profits badly cut by the greatly increased cost of western grain since the beginning of the European war, I determined this spring to raise all the feed I could myself. I have a farm of thirty-two acres, and "board my chickens at home" as far as possible.

I planted cassava, corn, Egyptian wheat, chufas, chicken corn, Spanish peanuts, cowpeas, feterita, millet, and sunflowers. Also have collards growing on low ground for greens. At the present I have ripe cowpeas, sunflowers, chicken corn, and Egyptian wheat in abundance for my poultry, and consequently have been able to cut off store feed entirely, which in these days of soaring prices is truly an extremely pleasant thing to do. I expect to feed wholly on home-grown stuff till frost comes. After that I will have some feed and some I shall have to buy. I believe the various new sorghum family grains are likely to prove a wonderful help to southern poultrymen; for although they seem so perfectly adapted to the arid section, growing and producing crops with almost no rain at all, yet they seem to take just as kindly to our numerous and generous summer showers. My feterita, planted, May 28, is now, July 20, about seven feet high, and heading out finely. It is an entirely new crop to me; but I am told that western people who have tried it thoroughly consider it a good substitute for wheat. One nice thing about it is its remarkably rapid growth.

Egyptian wheat planted at the same time as the feterita is not heading yet, but I have some planted earlier with ripe heads a foot or more in length. It looks very nice indeed, and the chickens eat it greedily. Another thing I am trying this summer is Sudan grass. It is designed for forage rather than for grain. I am much pleased with it also, and, as I said before, it certainly looks as if these new sorghums would prove a boon to the South.—C. H. T.

Please notice his feterita has grown seven feet high, and was heading out after it had been planted only 53 days. As Dade City is a little further north than Bradentown, and away from the water, they usually have *frost* more or less. In our Bradentown garden we usually have no frost so as to interfere with feterita or anything else. But it makes a very slow growth during the colder months.

Without question it is possible to grow your own chicken feed as I have suggested above; but if you have to hire help to grow your stuff it may transpire that it will be cheaper to buy corn and wheat shipped in than to grow some substitute as suggested. Each person will have to figure this out for himself. If you like the fun of growing stuff as well as keeping chickens, and have nothing else to do, very likely you can so manage as to pay out no money for your chickens; and so all you get for your eggs and fowls will be your pay for your labor.

I suggest the above is a good scheme for an old man like myself. Grow your crop with your hand cultivator, such as we have been talking about; and it is a comparatively easy matter to do this in our friable Florida soil.

A good friend, after writing me a long letter, suggests that perhaps I had better have a chunk of that "maple sugar" before I attempt to read it all and give him an answer; and *you* may need some of that same maple sugar to go along with that cultivator in growing the feterita to feed the chickens.

FETERITA IN VERMONT.

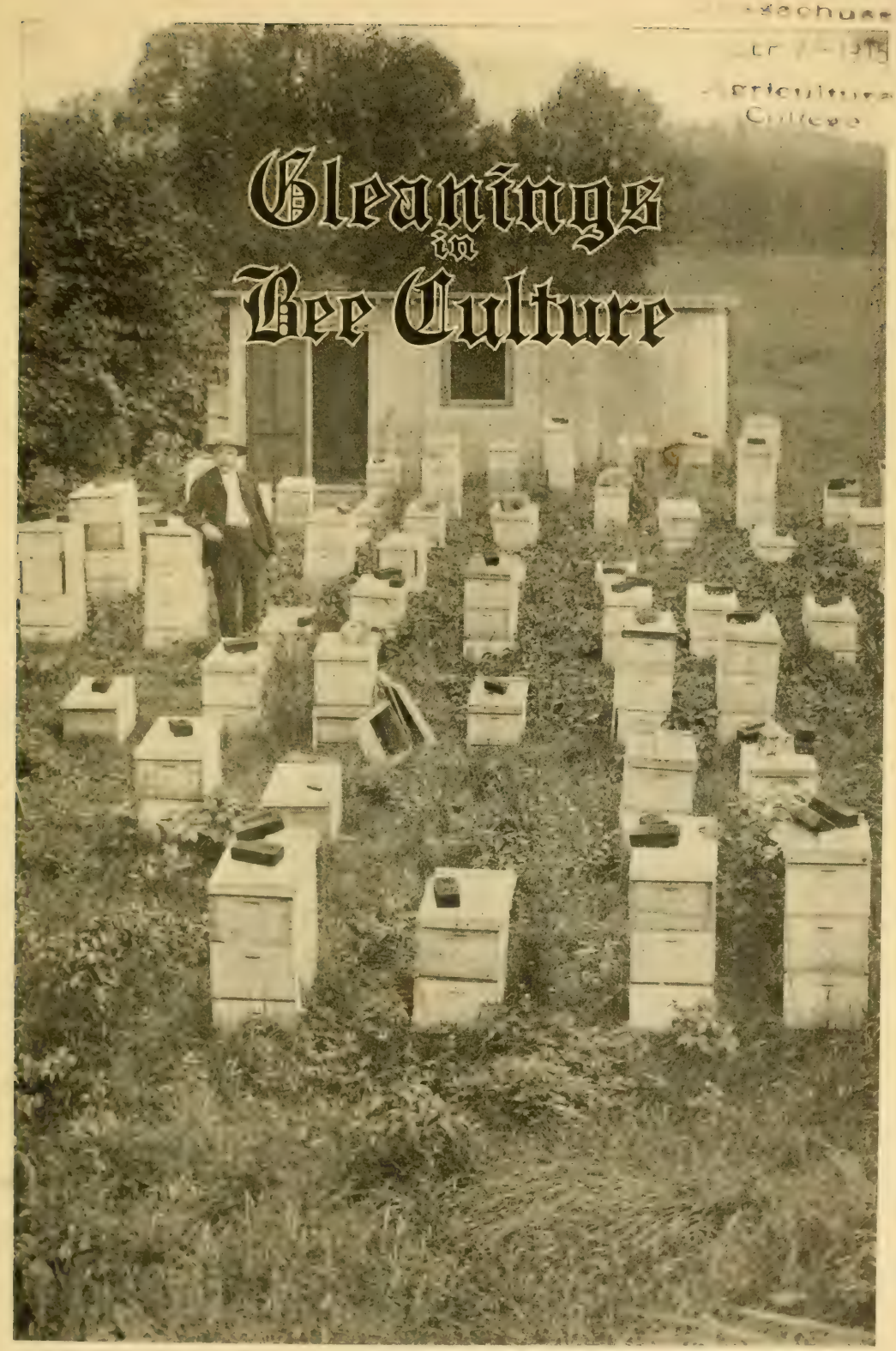
Will you please send me a few feterita seed to experiment with? We are so far north that I think if it will ripen in 60 days we need it much. Some years in 90 days corn will ripen. A grain that will stand dry weather and make good is what we want here. WALTER F. WHIPPLE.

Newport Center, Vt., July 29.

My good friend, unless you have sixty days of *warm dry* weather I hardly think you will get any feterita to mature. While it grows tremendously during the hottest part of the season, it makes a very slow growth when we have cold weather, especially if there are cold rains such as we had last winter in Florida. You can, however, grow green feed safely before frost.

PARY of
Agricultural
College

Gleanings in Bee Culture



Vol. XLIII SEPTEMBER 1, 1915 No. 17

Southern Headquarters for Italian Queens

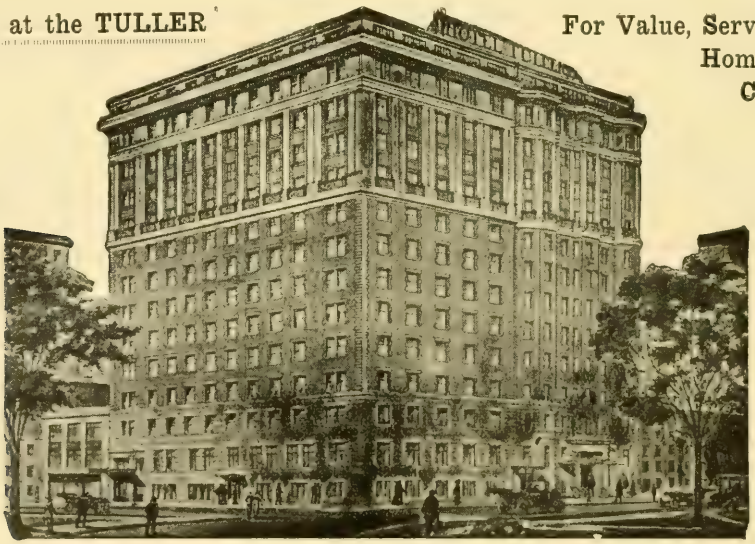


Photo of W. D. Achord of Fitzpatrick, Ala., with helpers, also his queen-rearing yard. Queen-house and residence in background. With six experienced men, and 600 mating-boxes, also 700 full colonies of pure Italian bees, we are able to give good queens and prompt service. Untested queens, 1 to 11, 50 cts. each; 12 and more, 45 cts. each. Tested, $1.00 each. No disease. Pure mating and safe delivery I guarantee.

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Gleanings in Bee Culture

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EDITORIALS

The cover picture for this number illustrates the apiary of G. W. Barge, of Union Center, Wis.

More than Enough Honey to Pay the Freight on Carloads of Bees from the South

Our Virginia and Texas carloads of bees gathered more than enough honey to pay the freight and other expenses on them up here, but not enough to pay the entire cost of them. About July 1 it looked as if we would have to feed the 600 colonies; but the hives are full, and some colonies are four and five stories high. After all, we do not think much of the proposition of moving bees two or three thousand miles in carlots. The railroads are exacting too big a toll to make it pay. It is much cheaper to "make" bees out of cheap honey or sugar syrup right at one's own home, and at the same time avoid the great risks of extremely hot weather or wrecks. The "made" bees will be any strain desired—not the mixed bloods that one finds when he goes after them. We solicit articles from those who have made colonies by feeding sugar syrup, or cheap honey for increase.

Automobiles — 75 per cent of Them in the Hands of Farmers

Our old friend the *Practical Farmer*, which, a few years ago, was opposed to the use of automobiles on the common highways, must have modified its opinion somewhat; at all events, it is authority for the statement that 72 per cent of the machines in use are owned by farmers. Farmers would, of course, have to use the common highways. Our esteemed contemporary (one of the best papers in all the world) must, therefore, approve of farmers purchasing machines and using the same roads used by horse-drawn vehicles. What is good for the farmer is good for the beekeeper.

Automobiles are wonderful time-savers; and when one buys a moderate-priced machine the upkeep and depreciation are not nearly as great as is the case with a horse and wagon, and the cost per mile only half as much, and, moreover, the machine has nearly ten times the range.

Drone-laying Queen Brood Sometimes a Stinking Mess

A couple of months ago we had a scare at our home yard. We found several frames of brood that were a stinking mess. The capped cells had the characteristic perforated capping; and while the dead matter did not rope it seemed to be a case either of European foul brood or sac brood. The possibility of the former gave us a great deal of uneasiness until we learned it was drone brood. Our Mr. Mell Pritchard in charge of our queen-rearing then recalled that we had had a number of cases of this kind in past years from drone-laying queens. We sent a sample of the brood, to make sure, to Dr. E. F. Phillips, of the Department of Agriculture, for examination. The report came back, "No disease." We merely mention this that others may be advised who find laying-worker brood; and if it occurs in considerable quantity during late June or July, much of it may be dead or stinking.

Honey-crop Conditions and Prices

In most and practically all localities the clover yield is over. The flow, more or less intermittent in most of the clover belt, continued up to the 15th of August; in other words, clover has continued to yield nectar at least a month later than usual. Apparently the aggregate yield this year of clover and some basswood is very much heavier than a year ago, and prices will run from 15 to 25 per cent lower, depending on the grade. There probably is not much more comb honey produced this year than last. While a year ago there was a larger percentage of comb to the extracted, this year the reverse is true. The intermittent yield of nectar, interspersed with cold rainy wet weather was very unfavorable for the pro-

duction of comb; and the result was, the aggregate yield is very much lighter than it would have been, but about the same as last year. Taking it all in all, comb honey will rule about the same as a year ago.

The Californians estimate that their crop will be 40 per cent normal. Last year it was about 50 per cent; but a large amount of California honey was held over. Last year's crop and this year's crop combined has tended to reduce the price of California honey anywhere from 15 to 25 per cent. The lower grades of amber are selling very slowly. Before the great war, large quantities of amber went to the European markets. This outlet has been shut off for over a year. Undoubtedly a large part of this has found its way into the manufacturing trade because it is cheaper than invert sugar, and is always better, because it has flavor.

In Imperial Valley, according to J. W. George, one of the largest producers there, the crop has been the poorest of any year since bees were introduced there. It will not run over 40 lbs. per colony.

The Colorado crop will be light, especially in the eastern part. In other portions of the alfalfa regions the yield will be nearly normal.

Taking it all in all, prices on all grades of honey will be lower this year than last, except comb honey, which will be about the same as last year.

Cost of Operating Built-over Automobiles, Touring-cars, and Trucks

A CERTAIN man once went to the editor of a newspaper, complaining that said editor had made the announcement that the complainant was dead. "Sir," said he, "I will have you to understand that I am not dead. I am very much alive."

The editor replied, "A newspaper never makes any mistakes, and therefore never retracts. If we said you were dead you were dead; but if you have come to life again we shall be glad to publish the fact, but that is all we can or will do."

Whatever may be newspaper policy or etiquette, GLEANINGS does not believe in that policy. While we have not made any statement to the effect that somebody was dead, we do know that some things ought to be dead. On page 609 of our issue for August 1 we stated that one could become the owner of an automobile truck that would cost him but a small sum of money by putting a truck body on a second-hand touring-car. Sometimes that may be true, and sometimes it isn't.

It is said that an open confession is good for the soul. It may be good for other people who may be inclined to follow the editor's well-meant but bad advice. Well, we found that the repairs on this second-hand auto, if continued at the present rate, would make the machine cost nearly as much as a first-class new automobile truck or a first-class new touring-car.

In buying a second-hand machine it is not always possible for one to know how much repairs will be required in the near future to keep the thing going, how much time there will be lost on the road, and cost of breakdowns. *Some* second-hand automobiles are dear at any price, while *others* are good bargains. Much will depend on the party who owned or operated them while they were passing from the new to the second-hand stage. At all events, our rebuilt auto "auto" be dead because it is costing us altogether too much to maintain, and we are beginning to fear that it would be cheaper for us to make it real dead with a sledge-hammer* and sell the junk to the dealer. A half-dead auto is a nuisance.

Wilmon Newell of Texas Accepts a State Position in Florida

WILMON NEWELL, who has been doing such good work as state entomologist and apiculturist at College Station, Texas, has resigned to accept the position of state plant commissioner of Florida. He is one of the best bee entomologists in the whole United States. Any state that can get him is fortunate. He will make good anywhere. His successor has not yet been decided on.

Mr. Newell took an active interest in beekeeping in Texas. He issued a number of bulletins on various matters connected with the industry that had more than ordinary merit. He kept a large number of bees himself, and this season sold to the A. I. Root Co. a carload of bees. He therefore knows the practical as well as the scientific side of the bee-question. What will be a loss for Texas will be Florida's gain; but, unfortunately for American apiculture, Mr. Newell probably will not be in position where he can do as much with bees and beekeeping as he formerly did. He will, however, have a wide field in studying a large number of plants and trees that yield honey in the state where he is going. It is to be hoped he will not wholly lose his interest in things apicultural, for the beekeepers of the country would be sorry to lose his valuable help in research work. His work was

* Some autos ought to be dead, that's sure.

so good that Uncle Sam, as we happen to know, came very near at one time making a bid for his services.

Our Sweet-clover Cover in Last Issue

We failed to state editorially in our issue for August 15 that the cover picture for that issue was made from a small vest-pocket kodak, 0 size, by Miss Mary Porter, daughter of Mr. W. L. Porter, formerly of Denver, but now of Caldwell, Idaho. Miss Porter, a schoolteacher and an ardent bee-keeper herself, was in attendance at the National convention of beekeepers last winter. She showed us the picture she had taken of a very rank growth of sweet clover along one of the irrigating ditches of Idaho, and wondered what kind of a cover picture it would make. It seems that at the time it was taken she was standing on the bridge, for the railing shows in the foreground.

The growth of sweet clover is sometimes enormous, but it is seen at its best along some of the irrigating-ditches of the West. The picture is a fair sample.

By the way, we would not dare to show Miss Porter's picture for fear some half a dozen young men would write her proposing marriage. We have in times past shown the faces of a number of single good-looking young women beekeepers. In several instances they have been surprised, amused, or shocked by several proposals of marriage. So far as we know these pretentious youths have been turned down flat or ignored.

The Great War and the Wet Season

Every now and then we hear statements to the effect that the great war is responsible for the almost continuous rains this season; and even a prominent lecturer on our Chautauqua course went so far as to state that the "scientists" of the country "agreed" that the heavy cannonading in Europe was responsible for the large amount of precipitation this year. The facts are, the "scientists" of the country do not hold that view. The United States Weather Bureau has repeatedly said there is no relation between heavy explosions and rainfall. Some years ago France wasted thousands upon thousands of dollars in experiments to test out this very thing. Similar tests were made in Texas, but results were always negative.

The claim that rains have followed great battles is not always true; and when rains have happened it has been simply a coincidence. If the great war is responsible for the floods and rains in many localities in the northern parts of the United States *this year*, why did not that same great war do the same *last summer?* Why did it not make it rain in Texas and Florida this year? On the contrary, there was a long drouth in both places.

There have been seasons of almost continuous rains before without wars big or little anywhere. This talk about "scientists agreeing" that severe concussions induced by cannonading bring on precipitation is nonsense. It is true we can lay a great many things to the war, but it is not responsible for everything.

Those Large Quadruple Winter Cases or Tenement Hives; Have They Made Good?

We should be glad to get reports from those who have tried out the large winter cases that hold four colonies on the tenement plan. Some call them Holtermann winter cases; others the quadruple winter case, and still others tenement hives. As a matter of fact, Mr. Holtermann did not invent the case bearing his name, and does not claim that he did; but he does use a simple construction, one of the best, and hence the name. There are other cases built on the same principle, one used by Mr. A. C. Ames, of Peninsula, Ohio.

Whatever the modification, the principle is much the same—using four colonies (back and sides together) to utilize the heat of each cluster, leaving only one side and one end and the top of the hive to be protected by packing and the outside case. For cold climates, and for excessively cold winters in milder climates the quadruple winter case has so far scored exceedingly well. But it is no cheaper than a double-walled packed hive. The amount of lumber that these cases require is just as much, and the labor of packing and unpacking in the fall and spring is vastly more. On the other hand it is argued that, if bees do winter better on the tenement plan, we can afford to pay more, both in labor and material.

Who invented those big tenement cases? We do not know, and it is not important; but our readers will find the tenement chaff hive described in the early volumes of Gleanings and illustrated in the frontispiece in early editions of our A B C and X Y Z of Bee Culture, in the early '80's. We used one for several years, and invariably it gave us good results. In the early days the veteran, E. France, used it, and later his son, Mr. N. E. France, for many

years foul-brood inspector of Wisconsin, and still later his sons have been using the principle.

Why, then, was the principle dropped by so many beekeepers and retained by so few? We do not know, unless it was that these big hives were heavy and unwieldy, because they involved extra labor in packing, and because they were not portable. The modern tenement is made in sections. It can be taken down and moved at any time.

Is the Advice to Put Comb Honey in a Refrigerator Always Wrong? A Challenge from Dr. Miller

For years the recommendation has gone out without a challenge, to store honey in a warm dry room—never in a cellar nor in a refrigerator. Any sane beekeeper who would challenge that statement has nerve. In a recent letter Dr. Miller refers to pages 659, 670, and 682 of our last issue. Then he says, "I want to ask you to put some honey in a refrigerator and then report whether it gets wetter or dryer." While he does not say in so many words what his experience is, the inference is that it does not get wetter, and that its quality improves, because cold honey becomes thick and waxy rather than thin, warm, and tasteless.

In some cellars and in some refrigerators the air is almost dry. In others the reverse is true. Moreover, no matter how dry either may be, the tendency to granulate is hastened materially. While that does no harm particularly for extracted, yet every time the granulated article is reliquefied some of the flavor is lost. Granulated comb honey no one wants except the Jews, who use it at certain seasons in their religious festivals in a preparation that makes use of both honey and wax. In any market granulated comb honey has lost a third of its value, and very often it will not sell at even the price of extracted.

We would agree with Dr. Miller's implied statement that both comb and extracted comb honey are improved if they are put into a refrigerator for a few hours before going to the table. They are improved in that they become thick and waxy. There is nothing finer to eat than a good grade of table extracted honey that has been placed in a window in hard freezing weather for a few hours before it goes on to the table. It becomes so thick and stiff it is almost impossible to dip it up with a spoon. If ever there was a food "fit for the gods" it is *cold* honey.

Thank you, Dr. Miller, for bringing this point up. Of course you and all others would agree that the advice to keep either comb or extracted honey in a dry warm place of even temperature for *storage* purposes is entirely correct.

Crop Reports in Ontario, Canada

The Ontario Beekeepers' Association of Canada is to be congratulated on the excellent work it is doing in securing crop reports from its members. (See the summary in last issue.) The credit for this work is largely due to Mr. Pettit, the secretary. The association is doing more thorough and better work than is being done in any portion of the United States or elsewhere in Canada. In the last report received, dated August 5, 19,107 colonies were reported, comprising a large area of the province. From this number of colonies there was secured up to that date 1,053,328 lbs., making an average per colony of 55.1 lbs. In going down the list, some counties report as high as 100 lbs. each per colony. And then we find 93, 107, 85, 78, 77, then down as low as 14, 15, and 19 lbs. per colony, making an average of 55.1 as stated. If Ontario has had as much rain as Michigan, New York, and Wisconsin, and the Government maps show that it has had nearly as much, it will doubtless still have a great deal of clover in bloom. The presumption is that all these averages per colony, as well as the general average, will go even higher.

If we had had as thorough work done as this in every state in the Union, we should be able to know by the first of August, at least, the amount of honey in sight, and the price it would bring to move the crop.

THE EFFECT OF THE GREAT WAR ON THE PRICE OF HONEY.

The prediction is made for Ontario that, while the crop is average and the "quality excellent," the "buying power of the public is below the average." This is doubtless due to the great war, which probably will produce a little more depression in Canada than in the United States. But the war certainly has affected the buying power of the people on *this* side of the line, and this, of course, will have a tendency to depress prices on food products that are not staple like meat, butter, milk, and the grains. Honey, while a concentrated food, is still regarded more in the line of a luxury than a staple. The public is inclined to regard as a luxury any non-essential when times

are hard. The facts are, honey, for the money, stands at the very top of the list of foods as an energy-producer.

Can Good Queens be Raised and Sold for Fifty Cents?

We have received a number of letters endorsing our editorial on p. 573, July 15, entitled "Complaints against certain Dealers; when Patience Ceases to be a Virtue." Among the number is Kennith Hawkins, of Plainfield, Ill. He writes:

"I wish to speak a word in approbation of your stand. Any advertiser who will not give an iron-clad guarantee, and stand by it until his patrons are satisfied, does not deserve any business from beekeepers."

Again, on this subject, Mr. J. Ivan Banks, of Dowelltown, Tenn., who, to use the parlance of the day, has been "stung" by some queen-breeders, writes:

I read with interest Mr. Doolittle's article on rearing good queens, page 573, July 15; also your editorial, page 608, current issue—"Complaints against Certain Advertisers; when Patience Ceases to be a Virtue," and now wish to ask the question, Can good queens be reared at a profit at 50 cts. and even less? According to my experience they can not. I find that at $7.00 per dozen there is very little profit in queen-rearing. I think if breeders would ask a fair price for queens, and then aim to rear better queens, there would be fewer complaints.
Dowelltown, Tenn., Aug. 9. J. Ivan Banks.

In answer to Mr. Banks' question, we may say that the demand for queens comes and goes. Sometimes the breeder may have more orders than he can handle promptly. At other times he may have a big stock. If he has his work systematized, weather conditions not being too unfavorable, he will be having a certain weekly output of queens. There will be times when he will have one or two hundred on hand. In order to make room for his virgins still coming on he can afford at such times to sell fifty or a hundred laying queens in the hives at a very low price. He had better get 50 cents a queen, perhaps, than to lose his virgins and, worse yet, throw his queen-rearing operations all out of gear. In times like this he can afford to sell queens at a low price in order to reduce his stock; but as a regular proposition, week in and week out, he cannot afford to sell them at 50 cents apiece, pay the cost of advertising, the cost of labor, the cost of select breeders, cost of feeding sugar syrup, cost of replacing queens that arrive dead, time in answering correspondents, and cost of bad weather when his matings will be low, or heavy windstorms when sometimes he will lose a half or two-thirds of all his good drones. It costs something to turn out a first-class product; and as a general thing the price of a good laying queen from a good breeder will circle around a dollar, the price varying according to the season and the supply on hand.

We agree with our friend Banks that it will be far better to put the price up, and with it the quality, rather than to put it down and sell any old thing in order to take care of the trade. There are some queen-breeders who, we are told, make it a regular practice to take cells of *any kind* from *any* colony, and sell such product to their customers. Such people usually furnish queens at low prices, and the quality is correspondingly low as a result.

Cost of Letting Colonies Get near the Verge of Starvation; the Value of Young Queens in the Fall

Mr. J. L. Byer in his department in this issue says very truly that when a colony has got down to just a few cells of honey it will be almost sure to destroy a great deal of young brood by eating up the larval food. Instinct teaches that it will be folly to raise more consumers, and therefore natural prudence would suggest a saving in the living force through rigid economy until the time comes for honey to come in.

But the real point of Mr. Byer's caution is not that young brood is destroyed, but rather that the *beekeeper himself* should not let the bees get to the danger-point. It is exceedingly wasteful to let unsealed brood die for want of food. If a colony is to winter well it must have a large stock of *young* bees to go into winter quarters. To stop brood-rearing now by carelessness is inexcusable.

But this naturally brings up the question that, during August and September in the North, brood-rearing (under ordinary conditions) will automatically cease, even though there are plenty of stores in the hive. If the queen is a year or two old she will let up in her egg-laying soon after the harvest, and may not commence again until a late flow of fall asters causes another flow. It may then be too late to get much of a stock of young bees.

It is right here that a *young* queen is far more profitable than an old one. Given sufficient stores, a young queen will keep right on laying through summer and until late in the fall, and she will stock that hive up with young blood that can stand the rigors of winter. An old queen that has exhausted herself in the early part of the season will usually stop laying when the main hon-

ey-flow ceases, whether the hive has plenty of honey or not. Sometimes the introduction of a young queen in late summer or fall means the saving of a whole colony of bees by next spring; and even if an old queen with her colony survives, the colony may be so weak that it will not be able to do very much by the time the harvest comes on.

The Genesis of Honey Extractors and Extracted Honey in the United States; Extracted Honey at 25 Cents a Pound

In this issue, pages 719, 720, is shown a picture of an old honey-extractor made by Captain Sanders as far back as 1875, or forty years ago. This machine is placed on exhibition at the A. I. Root Company's exhibit at the San Diego exposition. Captain Sanders knew nothing of A. I. Root's first honey-extractor, built in 1867; and yet, strangely enough, the machines are alike in principle, with precisely the same gearing.

Seeing that machine at San Diego brought up early memories. Well do we remember A. I. Root's original machine. It consisted of a milk-can that was stationary, with inside revolving reel and baskets to hold the combs. The reel was geared to a part of an old apple-paring machine mounted on a wooden cross-arm. This outfit was the forerunner of the Novice honey-extractor brought out in 1873, for A. I. Root did not begin to manufacture and sell supplies until some time after he built his honey-extractor and made his first hive.

Before A. I. Root put his geared machine in a stationary can on the market Mr. J. L. Peabody brought out the first extractor that was ever made and sold. This was in 1869. Later Gray and Winder and R. R. Murphy brought out their machines. The Peabody consisted of a revolving can without gearing. Referring to this, Mr. J. L. Peabody, the inventor, who was at the National convention at Denver last winter, was generous enough to say that Bro. A. I. Root's *geared machine* with a *stationary can* was so much superior to his that he took it off the market.

It was this old original machine that A. I. Root built that took his first thousand pounds of extracted honey. It so fired up his enthusiasm that he turned his attention more and more to bees, and less and less to his jewelry business, for at that time he made silver chains and rings, and other specialties of silver. The first mention of this original all-metal geared honey-extractor is found in the *American Bee Journal* for 1868, page 4. The honey taken by this machine sold at 25 cts. a pound; and even at that figure he could not supply the demand, and had calls for more. Later on, his crops were so large that he talked about building cisterns of brick and mortar to hold his honey; for several times he had more honey than all the wash-boilers, pails, and cans that he could borrow of the neighbors would hold; and all that honey was taken with that old original machine built in 1867. It embodied all the principles of the honey-extractor of to-day except that the pockets holding the combs were not reversible. The machine built by Captain Sanders, illustrated and described in this issue, page 720, was very much like it, but in principle only.

Well does the writer remember helping to extract in those early days. It was our job to keep robbers out of the honey-house by batting them down as they came in at the doorway; for every member of the family was put at work. Later, as we got to be older, we helped turn the crank. That was more fun than batting bees.

What an amount of honey we could get now if we only had the basswoods we had in those days! Fifty colonies of bees, and unlimited basswoods in the woods! for at that time no one considered that kind of lumber of any value, and every tree was standing. Our locality was not overstocked, and no wonder A. I. Root was able to get honey by the wash-boilerful, and no wonder that he was enthusiastic. As stated, this honey brought 25 cents a pound. As the scales showed that some of his hives were actually bringing over a dollar a day, it is not surprising that he should think of giving up his business up town. From some of his best colonies he took off $50 worth of honey,* or an average of $32.00 per colony from his 48. This exceeded even the tales in the Arabian Nights, and A. I. Root was wild with delight. His friends and neighbors when he first took up with bees had been saying that he was foolish to neglect his business and fool with bees, for they said "bees don't pay any more." But when he proved that they did, inquiries began to come in from far and wide, for he wrote up his successes and failures in the old *American Bee Journal* in the late '60's and early '70's. So numerous were the inquiries that he was compelled to get out a bee-journal, a bee-book, and sell supplies. A. I. Root's exploits in taking extracted honey gave a great boost to bee culture in the United States, second only to the invention of the movable frame by Langstroth.

* See *American Bee Journal*, page 64, for 1868.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



By way of emphasizing what is said about bees working on same kind of flowers, p. 611, it may be added that some varieties of fruit-trees are sterile to their own pollen, and, unless insects carry pollen to them from other varieties, they will remain barren.

Conditions named by J. L. Byer, p. 617, are much the same as they have been here, but results opposite. Wet weather caused the loss of field bees with him; but here it seems merely to have kept them at home, saving their strength and lengthening their lives; and colonies never have been stronger.

Mr. Editor, you have struck the nail on the head exactly when you say, p. 613, that the trouble about getting rid of the saloon has been "that the great majority of the voters would not desert their old party." As you say, a big movement is on, and whenever Christian men decide to put principle before old-party ties, and get together in one party, the speed of that movement will be quadrupled. [Exactly. But if the great majority *do not* desert their parties we are compelled in the mean time to do the best we can with the kind of voters we have.—Ed.]

P. C. Chadwick, p. 571, reports a queen filling five combs with eggs in five days, and says, "That is performance enough for me." Not for me, P. C. I have a queen in No. 81, perhaps the best layer I have; hive overflowing with yellow bees; but she's marked for decapitation because her bees don't reliver the goods. The measure of a queen's value is not the number of eggs she lays, but the pounds of honey her workers store. [More than once we have had instances in our locality showing that the extra-yellow bees are not the ones that gather the honey. Our neighbor, Mr. Vernon Burt, said to us a couple of years ago that he had some bees that were golden almost to the tip, "but," said he, "while they are beautiful to look at, they are absolutely worthless for honey-gathering, and I am going to pinch the queen's head."—Ed.]

A sister beekeeper wants to know about placing hives in pairs. Advantages: Doubling the number on the same ground. The bees know right from left, and bees from the right-hand hive never enter the left-hand hive. If they go wrong it will be to enter the right-hand hive of the next pair. If two rows are placed back to back there is still greater economy of ground room. When working at a hive it is a convenience to have the top of the adjoining hive as a platform. Disadvantage: Once in a great while some of the bees of a returning swarm will enter the wrong hive. [We have been working the scheme of putting hives in pairs at our outyards. We liked it so well that we shall continue to use it. There is one disadvantage you have not mentioned; and that is, in the spring the colony in the pair that is the stronger has a tendency to draw from the weaker. During the playspells of the young bees, the stronger colony, making a bigger show, will draw the young bees away to some extent. However, this slight disadvantage is not great enough to overbalance the advantage of being able to unite in the fall, putting the weak one with the stronger, and taking away its hive entirely. —Ed.]

That article by Chalon Fowls, p. 574, sets one to thinking. But isn't ye editor a bit sweeping when he speaks of a swarm according to nature having "nothing but old bees"? A bee would hardly be called "old" until it becomes a field bee. But in a natural swarm aren't there bees from the oldest down to those just able to fly? and don't you sometimes find on the ground bees too young to fly that have tried to go with the swarm? Yet a beginner might understand from what is said that only field bees are in a swarm. However, in a shaken swarm baby bees are brushed off that would never go with a swarm, and that might make a subtle difference. [You have taken our language too literally. What we really meant and perhaps ought to have said was flying bees in distinction from those that are nurse bees or those that could not fly. This does not mean that nurse bees cannot fly. Yes, it is true there is no invariable rule in regard to swarms. A swarm may and possibly does carry away three-fourths of all the bees—possibly nearly all that can fly. Some of the bees are much older than others, as a matter of course. The point we tried to make was that the old shake methods of swarm control were defective in that they took bees of all ages.

But you entirely skip over the important thing we want to know—what is your opinion of the Fowls plan of swarm control? Is it as good as or better than some other plan? It is more important to know what you think about that than what constitutes "old bees." Ed.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



THE CREED OF THE WORKER BEE.

I believe in true work and the spirit of service--
Not in a visionless grinding at tasks;
But the mood that springs forth all athrill with the morning
To find in its work all the rapture it asks.

I believe in each giving himself for the many
Not in a sad or a spiritless way,
But fully and freely, a gift worth the giving,
As flowers give fragrance and dawning gives day.

I believe in contentment, devotion, and courage;
Eagerness, loyalty, gladness, and song;
And in something all-wise and all-wonderful round us—
'Tis God I believe in! To Him I belong!

* * *

We could scarcely keep up with our peaches and plums this year, and for some time the ground under the trees had considerable over-ripe fruit lying around, or that which broke when it fell, and the bees certainly did help take care of it.

* * *

An Alabama correspondent writes enthusiastically of his success with the shallow supers, including his use of them to form a divisible brood-nest, according to Mr. Scholl's method, recommending it as well adapted to women beekeepers.

* * *

We set out a few young grapevines this spring, and are not at all pleased with the way they have (or have not) grown. Still less are we pleased with the construction of our so-called arbor. So the arbor is to come down, and most of the vines are to come up. Then we shall start all over with the plan of having each vine on a single trellis by the south side of a hive. In this way we shall have shade for our bees that will not only supply us with grapes, but, according to the editor, page 611, Aug. 1, will also provide a protection from the too persistent attentions of the militant members of our apiary.

* * *

Wasn't it attractive—that honey-plant number? The pictures were beautiful, and the information was of the tempting kind that "tastes like more." When a study is both as delightful and profitable as the study of honey-plants for a beekeeper, why should we be slow about going into it more exhaustively? A knowledge of the succession of bloom becomes a guiding factor in the management of an apiary, especially in seasons when the crop is not generous and the beeman may be tempted to extract pretty close; for then he surely should know whether there is enough bloom between clover and aster, for instance, for his bees to be self-supporting, or whether, having taken most of their supplies at a time when there are few nectar-bearing blossoms, he must feed.

* * *

Won't Mr. J. H. Todd, or some other advocate of the Simmins method of introduction, explain the advantage of the darkness? This is exactly the method I have seen Mr. J. M. Buchanan, of Franklin, Tenn., use, except that, after his queen had been quite alone without food for about half an hour, she was quietly run down between the frames *in broad daylight,* the whole operation being performed at the hour that happened to suit Mr. Buchanan's convenience. It seems as though having to do the work at night might be quite a drawback in an outyard, which was where we saw Mr. Buchanan operating. He was well on his way to Franklin by noon. We ourselves have never tried it, having used cages successfully and the smoke method disastrously. But we don't blame the method. It was probably clumsy work.

* * *

It doesn't appeal to me to let the queen have the run of the hive, and from neither my limited experience nor my more extended reading can I figure out any objection to keeping her more or less confined, according to the method in general practice. To find brood scattered around in the frames removed for extraction, as Mr. Poppleton admits he often does (page 147, Feb. 15), doesn't appeal either. We were very enthusiastic over an apiary we visited in 1913, with colonies tiered several hives high, but were surprised to see no evidence of queen-excluders. Replying to our questions, the owner assured us the queen would not go above the second story to lay, but later his wife said they had had a dreadful time extracting, with brood scattered all through the extracting-frames. It seems unnecessary, when the queen can be so easily confined. I wonder just what objection Mr. Poppleton has to the use of the queen-excluder for honey production, when he says he would use it for queen-rearing (page 577, July 15).

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The field meet held at San Bernardino recently is said to have been a big success. I regret that I was not able to attend so important a meeting so close at hand, but it was impossible for me to get a leave of absence.

* * *

I recently enjoyed a few hours' visit with my friend J. D. Bixby, of Covina. Mr. Bixby was just shipping the last of his honey to Los Angeles, where he finds a ready market for comb honey when extracted is a drag. Comb honey is all right I guess, but then—well, I kinder hate to tackle it—lots of work.

* * *

The editor tells us, page 609, Aug. 1, "how to get a cheap automobile truck for the beeyard work," which doubtless is correct; but what we need in California just now is a racing auto to run down a honey-buyer. Beekeepers are a little too much discouraged at present to be figuring very heavily on automobiles.

* * *

I read in the morning paper of August 1 of a beekeeper in Florida being arrested as a spy. A German by birth, and only a short time in this country, he was, as the story goes, making drawings of important places from a military standpoint along the southern coast, and was hiding his identity by posing as a beekeeper, which goes to show that you can't always tell what these beekeepers have up their sleeves.

* * *

I use only five-frame nuclei hives for mating colonies—two to four frames in each hive. After the season is well advanced I stock them with five combs; and by spring I have a splendid start for an increase in working colonies if a good season is in prospect. The most satisfactory way to build the nucleus up to a strong colony is to set another nucleus body filled with combs over a little colony, allowing the queen access to both sections. A full colony will be the result at no distant time. A five-frame colony will build up far more rapidly on ten combs so arranged than if the combs were set into a ten-frame hive-body and the other five combs placed by their side.

* * *

There is a pretty well-discouraged bunch of beekeepers in this part of the world just now. The crop and price, none too large, with the usual expense of supplies, makes the situation very discouraging. The price that is being offered by buyers compared with quotations to retail grocers by wholesale grocers is too wide apart to look good to the beemen. The situation resembles a transaction I have just read about in the East. A peach-grower in Arkansas shipped 41 bushel baskets of peaches to a commission house in Kansas City. He received $2.35 for his 41 bushels of fruit. In one basket a note was placed addressed to the final purchaser, with the request that the shipper be notified what the consumer paid for the basket of fruit. A letter from the purchaser, living in Kansas City, Kansas, said she paid $1.15 for the basket, but they had been selling for $1.25 until that time. The shipper received less than six cents per basket, while the consumer paid twenty times that amount. Doesn't look just right, does it? Just such work as this threatens the whole business fabric of the nation.

* * *

Southern California is very much in need of a beekeepers' organization for the southern half of the state—not a state organization, but a southern California organization, something on the line of the one maintained by the northern part of the state. Indeed, I am very much in doubt if a state association is practical in this state. The elements are widely separated, and the getting-together in a working unit is very expensive, and, as a whole, is not profitable, if we are to judge by the results of the past. There has been a state organization for the past twenty-five years, yet we find ourselves groping in the darkness as to the marketing situation at this very hour. The only source we have from which to judge the market is what we are told by the buyers; and as a business policy we cannot expect them to encourage prices until they are loaded up. Then, too, they well know that, the lower the figure at which they can turn honey at a profit, the more they can turn and the greater the net profit. The condition of the beekeepers is so well known that we may be handled with impunity. We should at least get together in one central meeting in the southern part of the state. There are many of us who thoroughly enjoy the annual meeting in Los Angeles, and who will miss the opportunity to meet there the coming winter to talk over and discuss matters affecting our business.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



The white-honey harvest is over in Ontario—at least in the great majority of places. In some localities in the north, where willow-herb grows, this may give a surplus for a week or ten days yet, should weather dry up a bit; but this plant bloomed earlier than usual this year. Basswood did quite well in most places, and here in York County it gave the best spurt we have had from that source for some years. As a result the province has a fair crop of honey, and at our home yards the results are much better than anticipated when writing my July 1st notes. At the north yard we have a good crop of nice quality. With fair weather from now on, a buckwheat crop would round out things nicely, and in addition put the bees in good shape for winter.

* * *

To-day is Aug. 9—normally harvest time for the farmers, and a time when we expect the strong smell of buckwheat in localities where this plant is grown. As a rule at this season the query is whether we are apt to have sufficient moisture to make the buckwheat secrete nectar, and even the farmers often wish for rain to help the crops not already mature. But what a difference this year! Rain, rain, every day, and regular downpours at that. Wheat that is cut is growing in the sheaf, and other grain crops are level with the ground, a tangled twisted mass.

Of course nothing is doing with the bee-keepers either; but our loss is so insignificant compared to the farmers' that we hesitate to complain. Rivers and creeks are out of their banks as in spring flood, and low fields are under water in many places. In twenty-four hours we had one rainfall of nearly four inches, while on several other occasions within a week an inch or more was recorded. Of course the real bright spot in all this wet time is the fact that there will be an abundance of clover next season. One year with another the rule holds good, that a real wet season is always followed by a good clover year.

* * *

In moving bees long distances, as in the case mentioned on page 522 in regard to those bees in Texas, it is hardly to be avoided in having some colonies run short of stores. But when colonies have so nearly starved as to have only a few cells of honey, as a note of warning to beginners who may think that such a condition is not detrimental to a colony so long as it is not actually allowed to perish, I might say that, when reduced to so low an amount of stores, the brood will have suffered a lot before that. Before a colony actually starves, the bees will suck up the juices of unsealed larvæ; and from observation a few times when they had not quite reached that last stage I feel sure much of the younger brood is allowed to perish by not having food given it.

* * *

The quarantine on shipments of bees from one state to another, providing that all such shipments must have proper certificates of health before being allowed to enter a given territory, as mentioned in the case of Nevada, page 608, Aug. 1, is a wise provision, and is bound to be copied by other states and provinces in the near future. It not only protects the beekeepers, but the man importing or shipping the bees out of a country as well. Just at present I have received some redhot criticisms of a well-known beekeeper in Ontario, who, it is alleged, imported bees from one of the states, and at the same time imported European foul brood into a territory supposed to be free from this pest. I am not attempting to judge the case in any way, as I am not sufficiently in possession of the facts of the transaction to make much comment; but the fact is indisputable that, had this shipment had an inspector's certificate giving a clean bill of health, there would not be half the chance for harsh criticism. Of course it would be quite in order for the Province to quarantine any shipments for a given period, even if the bees had been inspected before shipment, especially if the load came from a locality known to have brood diseases.

* * *

Mention is made on page 611, Aug. 1, that environment and other factors have much to do in determining how bees are apt to be tempered when working with them. It certainly has, as I have had an illustration this year that proved it abundantly. At one place we had for the last few years about forty colonies that had a record for being very cross—in fact, we often thought they were really devilish. These bees stood in an open field, and when working with them they would often follow us for twenty

Continued on next page.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



HONEY-CROP CONDITIONS.

Colorado has had abundant rains this season — in fact, too much at times, and there has been too much cold and cloudy weather with the rain. We have three inches above normal precipitation this year, and a deficiency in temperature of nearly three hundred degrees. This condition has been quite general throughout the Rocky Mountain region. If we could have had higher temperatures with the same amount of rain it would have been almost ideal. The short snowfall in the mountains has been fully made up by the rains, so there has been no shortage of irrigation water to speak of.

Sweet clover is in excellent shape, and is yielding well at this date, Aug. 11; but we have had such a late season that one case of comb honey around is all we can hope for. That much will not be secured unless the honey-flow lasts well toward September. The average comb-honey crop will be less than one case for the state. In the Arkansas Valley bees are doing fairly well from Lamar to the state line. West of Lamar, as far as Rocky Ford, conditions are poor—a thirty-pound average of extracted honey being expected by one producer at Las Animas.

In the Ordway district, conditions are not reported favorable; and while bees were doing well in Fremont and Custer counties early in August, no large crops will be secured, and no shipping honey will be harvested.

Northern Colorado is blessed with abundant sweet clover, and about a one-case crop of comb honey will be secured.

Montezuma and La Plata counties in southwestern Colorado had late freezing weather this year, and the alfalfa was frozen and blighted worse than anywhere in Colorado. Sweet clover was just coming in bloom the latter part of July, but bees were doing well; and with the general late flow in September a fair crop may be secured.

Delta County has not materialized the crop that indications pointed to earlier in the season. Spraying trouble is again reported from Cedaredge, Garfield County. Conditions are very poor, and little honey is expected. The shipping crop in Colorado this year will be less than last unless we have very good honey weather from now on.

Idaho will produce some honey; but the season in the Twin Falls country closed (or practically closed) in July.

I have six hundred colonies here in Boulder County, and have taken off only about twenty cases of comb honey. Prices have started out well, but will drop soon. Some few cases were sold at $4.00; but most that have been sold have gone at $3.50. A great many tourists are in Colorado this summer, and they are buying honey well. Comb honey is now retailing at 20 cts.

There has been but little swarming in eastern Colorado; and what there has been occurred mostly in August. If large prime swarms in August indicate a late honey-flow we should have it this year.

On page 622, Aug. 1, the flowers growing on the brook bank shown in the illustration are not lupins, but are the loco weed. Bees work more upon the white-blooming loco than upon the purplish blossoms. This mistake was made in writing the description of each flower upon the back of the prints. The lupin is a larger plant, with plumelike blossom stems of bluish-white flowers. I have a photograph of the lupin that I will show later.

Continued from preceding page.

rods or more when leaving the yard. One day a couple of friends came with an auto and stopped about four hundred feet from the yard. They beckoned for me to come to them; and when I came there was company with me. I can still see the driver hastily cranking the machine and going up a three-foot embankment to get to the top of the highway. Doubtless when this meets his eye he will remember the occasion also. However, this spring it became necessary to move this yard, and half were brought to the home yard, the rest being taken to an outyard. In both cases the bees are among trees and surrounded more or less by evergreens. My intention was to requeen the whole lot in fruit-bloom as I dreaded consequences of such bees near the working land of the farmers on whose places they are. But weather was bad and work pressing, and the requeening was not done. But the sequel of this roundabout narrative is yet to come. These bees have given no trouble in their new locations. Not a single member of the two families where the yards are located has been stung once, so far as I have learned.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



SOLAR WAX-EXTRACTORS.

"Doolittle, I came over to have a talk about solar wax-extractors."

"Very good, Jones. The solar-wax extractor is something every man keeping bees should have, even though he has as few as five colonies."

"But I am told that it is comparatively worthless for melting up old combs."

"The man who has old combs by the hundred to melt up could doubtless make it pay to employ the water or steam process; but for the ordinary collection from an apiary of from fifty to one hundred colonies, the solar wax-extractor will take care of all the accumulation during each year. From such apiaries no great number of old combs can be profitably spared to render into wax."

"But I do not think I get fifty per cent of the wax from old combs."

"Do you do more than put in the old combs and allow the sun to melt them?"

"No. What more can any one do?"

"As soon as the sun has heated these old combs so that the wax will run out from those at the bottom of the pile, take a wooden paddle and press the refuse against the side of the comb-pan where the rays of the sun strike the most squarely. You will see the wax run as you never saw it before if you have never done this."

"What shape is your paddle?"

"The paddle itself should be about six inches square, with a handle two inches wide. I made mine out of half-inch stuff, rounding the side used for pressing out the wax so that it somewhat conformed to the concave side of the comb-pan. With such a paddle, used with a rocking motion, three or four times an hour or so apart as you are passing the extractor, 95 to 98 per cent of the wax any comb contains can be gotten out unless the comb contains so much dry pollen that it absorbs the wax as it is melted. The only way to get wax from combs largely filled with pollen in quantities that will pay is by the water process."

"But don't the wax and dirt all mix together when coming from the solar wax-extractor?"

"That depends somewhat on how the extractor is built. If so small that it allows the wax, as it drips from the comb-pan in your extractor, to cool and harden as it drips, more or less dirt and dregs will come off and be mixed all through the wax, and melting over for purifying in such an extractor is only doing over again the same process with the same results."

"How can the purifying be done then?"

"By making the extractor large enough so that it will allow the dish which receives the melted wax from the comb-pan to be in the sun under the glass, which keeps it in a melted condition for hours. Wax is purified by allowing it to remain for several hours at a temperature between its melting and boiling points, thus giving a chance for all impurities to settle to the bottom. This is exactly what can be done in the sun extractor just as easily as not to do it; and by using this extractor in any other way deprives it of half the benefit to be obtained in using it."

"But will all the dirt and dregs settle to the bottom where wax is kept melted for half a day?"

"To overcome all this dregs and dirt matter I punch two holes near the outlet of the comb-pan on either side, and, by means of a wire suitably bent, hang a small strainer made of cheese-cloth or some other suitable fabric so that the hot wax is strained as it passes from the comb-pan to the dish receiving it below. As both the strainer and the receiving-dish are in the sun all the while, the wax is so thin that a fabric can be used that will take out all but the very finest of the dirt."

"How do you keep the dregs from flowing down with the wax from the comb-pan into the strainer? The incline of the comb-pan would carry all along together."

"About two inches above the outlet of the comb-pan two other holes are made, one on either side of the center, into which go two wires to which is soldered a piece of quarter-inch-mesh wire cloth. This wire cloth is fitted at the bottom to conform to the concave of the pan. This arrests in its flow toward the strainer all but the wax and the finest of the dirt."

"What is used for a receiving-dish?"

"After doing some figuring I got our tinsmith to make some oblong square tins which hold two pounds of wax, when the melted article came within a quarter of an inch of the top; and when the proper amount was in, the cover was shut over the glass till the wax was cold, when it would come out in a brick form suitable for a fancy market. In this way it could be packed in a proper-sized box and shipped in perfect condition to any market."

GENERAL CORRESPONDENCE

EUROPEAN AND AMERICAN FOUL BROOD

BY R. F. HOLTERMANN

It has at last become my experience to know what it is to have European foul brood among my bees. Could I do so it would not be especially edifying to tell any one how I got it; but for some years I have been looking for its appearance, and, according to advice, I have aimed at having only Italian bees. Just now I am not prepared to say that the disease attacks black colonies more readily or more severely than Italians; yet I have no doubt, from the abundance of disinterested testimony, that such is the case, and I am substituting Italian queens for blacks in such cases.

ITS SPREAD.

Some one has written to me saying that I can be thankful that it is not American foul brood; but at present I can by no means agree with that view. Contrary to the statement of those who have gone by hearsay, I have never had more than seven colonies out of a hundred in any apiary with American foul brood, and I think I am correct in saying that only once in over thirty years of beekeeping have I had that much.

With American foul brood I have sought to isolate the occasional cases of disease; and in doing what I could I have burned and buried not only brood-chamber combs, but surplus combs and honey, and charred the inside of the hive and burned 12-oz. duck quilts. This burning was done for fear of any little slip in handling or rendering that which might have brought them in contact with the disease. In this way I have been able to stamp out the disease, and, to illustrate, have not seen a cell of American foul brood in any apiary of ours for some time. I feel confident that, with care, I can get rid of American foul brood by isolation and by the destruction of any thing that I know has the germ about it, bearing in mind the prevention of robbing or of feeding any honey back to the bees, even if I think there is no disease in the apiary. Feeding back honey has resulted in the extensive spread of the disease in the apiaries of some very well-known beekeepers.

When it comes to European foul brood, the possibility of stamping the disease out when once it has been introduced appears to be a question which can be answered by many only as being doubtful. Probably some prefer European foul brood because the bees can clean it from the cells or because some advise not shaking the combs, and in this way a saving appears to be made.

TREATMENT.

When the first cases of the disease were found I was not quite sure what it was. Owing to a pressure of work the actual condition of things did not take proper hold of me. I wrote the inspector, who was absent, and left matters for about a week or ten days. Then I decided, let it be what it might, I would treat the colony as if it had American foul brood, feeling that I had lost valuable time over it. I shook every colony having any trace of it, and put the bees on starters and then on full sheets of foundation. But, as many of us know, this takes the courage out of bees, or wears out their powers to secrete wax.

I decided to take out all combs with more than a few cells of diseased brood, stack this brood upon a colony with the disease, let the healthy brood hatch, and allow the bees to clean out the disease. Thinking this matter over during the night, I decided I had made a mistake. The disease is transmitted in some way different from American foul brood, and one great distinguishing characteristic is that in American foul brood the diseased brood is untouched by the bees. In the other case it is cleaned out. In the process of dragging out the diseased brood, the bees get the germs on other parts of the comb, and their own bodies become germ-carriers, even to the field, garden, and wood, and leave them on blossoms, even miles from the apiary. Thence they may be carried miles in another direction by visits from other bees, and be brought in contact with brood in other hives.

In fact, in my estimation a colony of bees quite distant from a diseased colony getting the disease shows that it is not likely to have obtained it from stray bees. For the above reason I try to allow no cells to be cleaned out by the bees. Where a cell or two or even more are found in a hive we have cut around it, keeping away from the disease, and can put this cut-out comb into a tin can and afterward burned it.

Where the disease is in an apiary, and

bees have come in contact with the germ, there would be very great danger of the spread of disease. Such a case would be that of robbing from a common source, such as from combs after extracting, and from exposed honey.

For years I have said that when European foul brood struck our bees I would throw up the sponge, walk out, leaving the outfit behind me. I may do this yet, I sometimes think. However, since adopting the above radical methods we have found, I think, only two cases we had not seen before. At the same time, we have had too much work to do to look very carefully for dead brood.

Lest any one might be anxious lest he might have the disease from queens or colonies shipped by me, let me say no one has received a queen out of any of our apiaries this season; and with one exception the bees shipped out were from an apiary which even now has shown none of the disease. In that exceptional case the man was written to at once, and told that the disease had been found in the apiary from which the bees were supplied. It appears to me that when the disease is in a new section of country, as in this case, beekeepers should be warned, so they can be on the lookout. The statement which some have made, which came first hand from a friend last year who had been told that I had been importing the disease into Canada, is totally untrue. No inspector nor any one in my employ, nor myself, had found a cell of foul brood in anything I have imported.

Brantford, Ont.

PRUNING DISEASED CELLS FROM A COMB; IS THE PRACTICE SAFE?

BY J. F. KIGHT.

I have just had an experience which, so far as I know, has never been reported to GLEANINGS in a similar manner. In early May I bought seven colonies of Italian bees and placed them in an outyard; but before doing so I examined them carefully twice, about eight days apart, and found them to be in fair condition, and breeding up well. Knowing the presence of American foul brood in the neighborhood I took particular pains to see that they were not diseased. I examined them again on the tenth day after bringing them home, and, to my surprise, I found six of them with from one to six cells of American foul brood. As soon as nectar began coming in I placed a super of starters above them, and, with a little smoke and a little hammer, I drove them above. Then at the end of the 48 hours I placed them on full sheets of comb foundation and left them as cured. I stacked the six old diseased hives by pairs, and at the end of 21 days I shook all the bees off the diseased combs on to the starters, and in 48 hours I gave them full sheets of foundation, and felt sure I had perfected a cure.

Now comes my story. In making this last cleanup some bees with infected honey must have gone into a hive just in the rear, for I found in about twelve days three diseased cells in one frame. The queen had almost filled every comb with brood, and to destroy all of them again seemed too great a loss, so I decided to prune. With a sharp long-bladed pocket-knife I cut out these three diseased cells, making a hole in the comb about an inch in diameter. That was over a month ago, and there is no disease in this hive, and now it is one of the best and strongest colonies. So it seems that, if the disease can be detected in its incipient stage, pruning might save it. Certainly it has done so in this case.

It will be noticed that in the first case I drove the bees, and in the second case I shook and brushed all off. The reason I prefer to drive in the first instance is that it is no trouble to cause the queen and the old bees to rush to the top hive from the smoke and hammering; then there are left enough young bees to care for the larvæ. Besides, this drive system is more sanitary and there is less danger of spreading the disease. The second shift, all bees must be saved; hence it is necessary to shake and brush.

I should be glad to know whether or not this disease has ever been cured in a similar way.

Indianapolis, Ind., July 21.

[We have had reports from those who have pruned out the diseased cells in a colony showing American foul brood. In some cases a cure was effected. But it is fair to say that we have had reports from other people who have tried this pruning business and found it unsatisfactory. It may eliminate the disease for a time; but sooner or later, especially when the stores are pretty well eaten down, the old disease



Completely equipped honey-house of B. N. Allen, Birmingham, Ala.

will reappear. In the same way, a heavy honey-flow will cover up the infected material; but when this honey is consumed, and the bees get down to the old original stores that were left, foul brood will break out again. In some cases, doubtless, the pruning cure will be complete; but you can never tell. Some day it may break out again, perhaps a year or so hence. Of course, there are objections to shaking, chief of which is the cost, the loss of brood, and the destruction of otherwise good combs. By stacking up you saved the brood but you didn't save the combs. Well, when the disease broke out again, and the hives had been shaken, you probably did the correct thing to prune it out; but you would do well to set those "pruned" colonies in some isolated location, and watch them closely next year when the stores are pretty well eaten down.

In this connection, during the honey-flow combs should never be shaken. They should be brushed with long grass or weeds. These extemporized brushes should then be burned or buried. The combs may then be stacked up or burned. Ed.]

THE HIGH COST OF LABOR, AND SOME OBSERVATIONS BY THE WAY

BY L. W. BENSEN

I am wondering who could afford to pay five dollars a day for a hired man to work with bees alone. I am a hired man myself, and I am satisfied with two dollars a day the year round. I have worked for several years in different states. All my employers paid what they could afford, and in every case I had a home and the work was a pleasure. They furnished me good board, and an automobile to ride to outyards. Everything needed was handy.

If the owner is to pay five dollars a day for labor, what is he to make? If I cannot make two dollars for the man I work for, I would rather quit and give him a chance to get a better man. I have bound wheat at a dollar a day—hard work, but no harder than taking off honey. To work the year

round is easy. I sit and put in foundation. It is just as easy as to sit and read. I have put in a whole lot in one day, too, for Mr. B. F. Smith, of Cowley, Wyo. I have filled 60 supers a day, two pieces in each box, 28 boxes to the super, and I tried to put them in as well as Miss Wilson does for Dr. Miller.

No other business on earth requires a more reliable man than the bee business. A man must not only know how to do the work, but he must do it on time, and a lot of it, to earn even $1.50 a day.

This honey-house, owned by my present employer, Mr. B. M. Allen, of Birmingham, Ala., has a concrete floor, hydrant water, stove, roll-top writing-desk. Outside are shown some of the 200 hive-stands that I am painting, ready to replace old ones. White ants are hard on wood here. I painted with roof tar. There are 250 colonies near this house.

No, I do not use the tank shown in the illustration for extracted honey. It holds 14,000 gallons of water supplied from an artesian well.

For cutting foundation I make a miter-box, similar to what carpenters use, except that I make it the same width as the foundation used and six inches longer. It is high enough to hold twenty-five sheets of foundation—a block held a little at the end to butt the foundation against, another to push it along. The same saw-cut is used to cut narrow and wide starters. I use a caseknife with a wavy edge which is sharpened all along on one side, so that the bevel pushes the foundation away.

Not so much of the melted wax gets on the end to stick to the cut-off sheet. Then, too, I wipe all the wax off the knife after every cut and keep the caseknife blade on the hot plate of the foundation-machine. It is as easy to cut foundation as to eat buckwheat cakes and honey.

Birmingham, Ala.

THE POLLEN-YIELDING WATTLES

BY T. RAYMENT

The wattles are undoubtedly the national flowers of Australia. Like the gum-trees* they are spread over the entire continent in varying forms, some of which are very beautiful indeed. The illustration depicts the bright-yellow pollinia very clearly. When fully opened the flowers have a unique fluffiness extremely difficult to delineate. A close scrutiny of the blossom gives one the impression of floral pompoms composed of delicate stamens radiating from a common center. The specimen shown is a native of New South Wales, generally known as "Cootamundra" wattle (*Acacia Baileyana*). This variety is greatly favored for garden planting on account of its rapid growth and great beauty. The foliage is very feathery and of a rare shade of green, somewhat like that of the carnation.

While Australia has a vast number of good (eucalypt) pollen-plants, none are comparable with the wattles. In GLEANINGS, June 15, J. E. Crane desires an analysis of pollen. We are better off than that, for we have had many samples of pollen analyzed, and the wattles are away ahead of anything in Australia for nitrogenous protein content. It is doubtful whether any pollen in the world is richer in the essential



Floral pompoms, delicate stamens radiating from a common center.

* The vernacular name for the various species of eucalypti.

elements so necessary for the maintenance of bee life. Pollen grains in the bees' stomachs are in a growing condition—*e. g.*, live food. No meal substitute—which is inert—can ever adequately take the place of the natural supply. Better plant a variety of pollen-bearing plants, and for this purpose there are none better than the Australian acacias.

The wattles should thrive in the United States, and the profusion of bloom—which completely eclipses the foliage — should surely delight the apiarist and his bees. For potato land the silver wattle (*Acacia dealbata*) is eminently suitable. Sandy loam country for the black or tan wattle (*Acacia decurrens*) and rising stony land for the golden wattles.† A characteristic feature of the Australian "bush" or forest is the great number of wattle seedlings that come up after the terrific roasting of a brush fire. This is due to the heat cracking the hard seed covering and permitting moisture to reach the vital germ. When handling wattle seeds it is advisable to remember this, and to pour boiling water on them the night before planting; also do not give any manure or fertilizer.

Some of the Australian forests are composed of one variety of eucalypt only—*e. g.*, yellowbox (*Eucalyptus melliodora*). While this tree yields splendid crops of honey—up to 300 lbs. per colony—it furnishes little or no pollen, consequently strong colonies dwindle down to mere nuclei. It will be seen from this that the question of a pollen substitute is a vital one to Australian apiarists.

†*Acacia pycnantha.*

About pollen substitutes, we have had the best success with the white of an egg—almost pure albumen—beaten up with powdered sugar to a candylike consistency. The bees breed up very strongly on this compound.

In all the discussions we have heard or read on this subject, none appear to dwell on the inert character of all meal, such as peameal, rye flour, etc.—substitutes. Illustration: A man buys a paddock and sends a sample of soil to the agricultural chemists for analysis. This report states that it possesses all the constituents necessary for the production of a maize crop, and yet maize may refuse to grow in that paddock. The elements are there, but inert—that is, they are not in a form suitable for plant assimilation.

As the readers are probably aware, the bark of the wattles is rich in tannin, and is valued on that account for making leather. Black wattles are ready to strip when about seven years old; and the bark is worth about $35 per ton. South Africa has planted them extensively, and has built up an export trade in tanbark. The Cootamundra wattle begins to bloom when about three years old; and to see an Australian river with a golden border perhaps a couple of chains wide is a sight never to be forgotten. During spring time special trains run from Melbourne, the metropolis, to enable wattle-lovers to appreciate the golden glory.

Briagolong, Victoria, Aus.

Editor's Note.—This is the concluding article of a series of three by Mr. Rayment on certain important pollen and nectar yielding plants of Australia.

IN THE WEST VIRGINIA HILLS

BY JAMES I. LUTES

When I was a small boy my father kept bees on the farm in the old-style box hives. Some were in hollow logs sawed about two feet long and chiseled out and smoothed up in the best possible way. A few colonies were hived in nail-kegs. A square box or small store-box answered for a super, with a small hole bored in one end for the bees to escape.

When he thought the box was full of honey he would just take the cob or old rag from the hole in the end of the box. He would pound on the sides and top, and if it sounded as if it were full of honey he would remove it. This was along in the '60's and '70's when meager attention was given to beekeeping.

Whenever a swarm issued he would gather up old buckets, dishpans, and sleighbells, and rush out at breakneck speed to get them to settle on some nearby limb. At the present we hoot at the idea of making such a fuss and worry. We just let them alone—by far the better way.

I have been a merchant for the past thirty years, and a beekeeper for five or six. I have had the bees merely for pleasure and recreation. I love Nature, and like to work and be with the bees. They seem to bring me rest, and cause me to forget the cares and worries of business.

About six years ago I purchased some bees from a neighbor who was getting very old, and was unable to look after them



The bees bring me relief from business worries.

any longer. The six stands were in the old Gary hives. The same winter they all died. That year there was much black honey, which I believe killed them. Possibly the honey-dew had some effect. The loss of thirty dollars discouraged me somewhat, but I decided to try my luck again.

I then procured two stands of Italian bees which I have in my apiary yet. To the present time I have increased them to fourteen.

Part of my bees are in the ten-frame chaff hives. Since I have sold my general merchandise business, my health demanding outdoor work, I am now going to pay more attention to my bees and live out in the open. I want to get God's pure air and sunshine, and be away from the shut-up store.

I have a beautiful place for my apiary. It stands in the orchard close to a small stream where the ground is perfectly level.

Glen Easton, W. Va.

WHY QUEENS LAY IN QUEEN-CELLS

BY J. E. CRANE

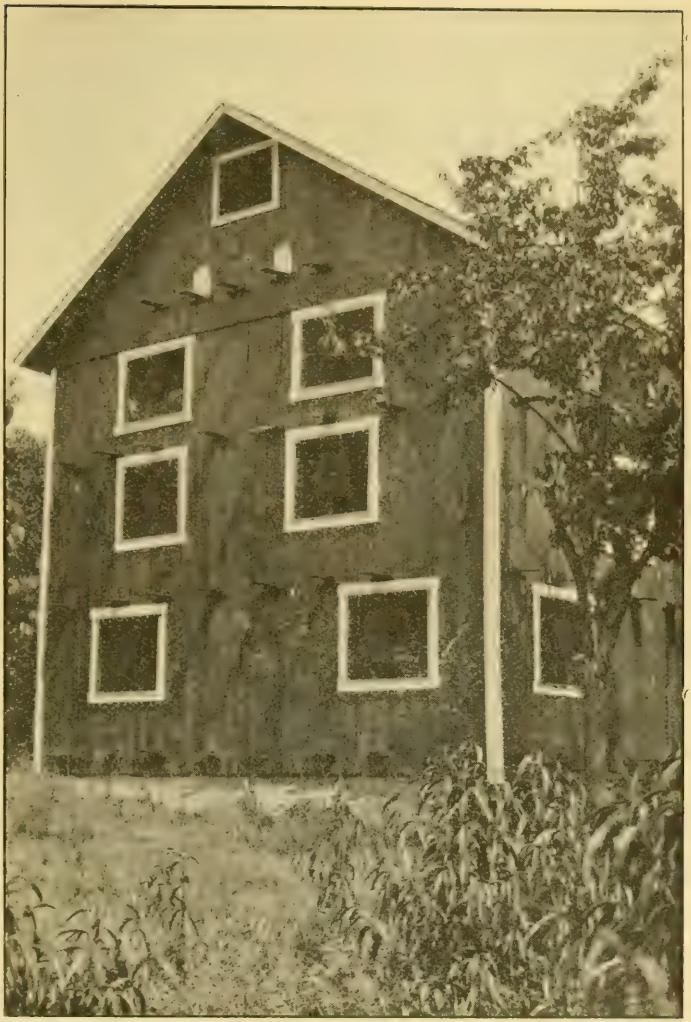
On pages 489 and 490 are some original thoughts and theories by J. E. Hand, presented in an interesting way. I have neither time nor disposition to reply to them all, but will content myself in calling attention to one or two of them. In this he tells us that "broodiness in queens, as in hens, is a period of temporary exhaustion of fecundity during which the ovaries are speedily developing another batch of eggs. During this period of broodiness, which varies in duration with different queens, the mother instinct predominates, *and the queen will lay eggs in queen-cells at no other time.*" Italics my own.

Now, if our friend Hand had said that this was true in many cases, we should doubtless have agreed with him. Or if he had said it was far more often the case than the average beekeeper suspects, he would not have been far from right. Or if he had said that he believed such to be the case we should have had little disposition to disagree with him; but when he states it as an absolute fact I beg to differ with him.

The next day after reading this article I went to an outyard where I found a colony, one of the most populous in the yard. It had a last year's queen and a large amount of brood in all stages. In fact, the bees

had carried most of the honey into the super to make room for brood in the brood-chamber. There was no evidence that I could not discover that the fecundity of the queen had been exhausted some ten days previously, as there was a large amount of eggs and unsealed larvæ in the hive. It was, in fact, almost the only colony I found in the yard preparing to swarm, with perhaps the most prolific queen. Did she place eggs in the queen-cells because of the exhaustion of her supply of eggs, or was it for lack of room in which to lay her super-abundance of eggs? I thought the latter reason most in harmony with the facts.

Again if, as Mr. Hand states, the eggs are laid in queen-cells because of the exhaustion of eggs we should naturally expect to find eggs most frequently in queen-cells in large hives where the queen has a large amount of room for egg-laying. But instead we find eggs in queen-cells most often in small hives where her laying has been restricted.



House apiary of W. H. H. Stewart, Emerson, Ill. Mr. Stewart writes that he considers the keeping of bees out of doors a "makeshift."

We sometimes have seasons in which a large amount of brood is reared with very few eggs in queen-cells as little honey is coming in, and the bees wear out rapidly, but in other years, with less brood in the hives but honey abundant in the fields, we find almost every hive supplied with eggs in queen-cells. Can it be that queens are more broody in seasons of abundance than in years of famine?

Other reasons might be given for disagreeing with Mr. Hand along this line, but enough has been given to show that there is more than one cause for queens laying in queen-cells. I believe there are many, and temporary exhaustion of the supply of eggs is only one of them.

Another matter with which I take issue with my friend is sealed covers for winter use. He tells us that "sealed covers on the inner chambers under the packing preserve the heat." This, in a sense, is true; but it is not the sealed covers that preserve the heat, but the packing. We do not cover a sweaty horse in winter first with an oilcloth or rubber blanket, and then a woolen blanket to keep him warm. No! we cover him with a good woolen blanket, and if that is not enough we put another woolen blanket over the first. We do not keep ourselves warm in severe weather by placing first over our bodies an air-tight covering, and then over that woolens or other cloths to retain the heat, and then leave off our shoes and stockings for the air to circulate be-

neath our clothes to take up the insensible perspiration. No, we avoid all garments that will retain moisture, and use only those that will retain heat and allow moisture to pass through.

I agree with Mr. Hand that porous packing called an absorbent is a misnomer. It is not an absorbent. But if I were to hazard a guess I should guess that the principle of the use of winter packing has often been misunderstood. The fact that it is often spoken of as absorbent leads me to think so.

The object of packing is not to absorb moisture, but to conduct moisture away from the brood-chamber without letting the heat escape. If we were to call a cushion used for this purpose a moisture-conducting and heat-retaining cushion you have the idea exactly. If a cushion or packing fails to do this it is a failure. If we were to use a sheet of iron or a flat stone over our brood-chamber we should have exactly the opposite result—viz., the retention of the moisture and dispersion of the heat of the hive. A properly packed hive allows very little air to escape through the packing or very little upward ventilation. I doubt if as much air escapes through the top of a well-packed brood-chamber without a sealed cover as from a brood-chamber with sealed cover and large entrance.

I began the use of packing above brood-chambers more than forty years ago by the use of a thick layer of wool over a cloth above the frames, and I am still using old cast-off woolen cloths for this purpose. I do not use them for absorbing moisture, but as a good material for retaining the heat of the hive, and allowing the moisture to escape.

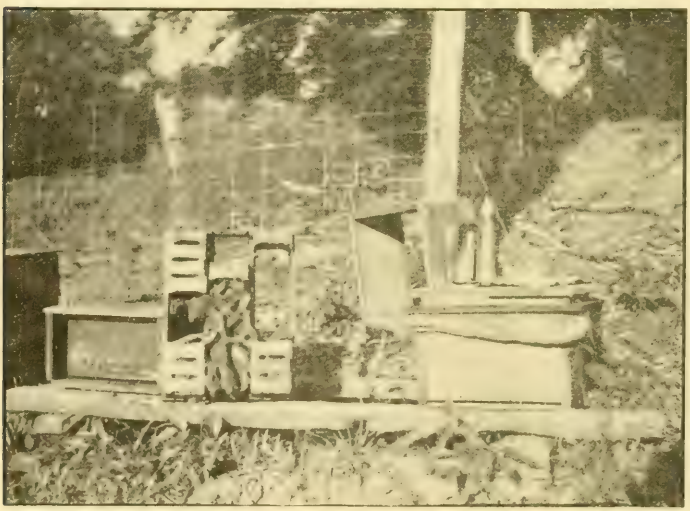
Middlebury, Vt.

PICKLED PARAGRAPHS

BY BENJAMIN F. KIRK

Lots of ink is spilled in cussing and discussing the old box hive; but there's no hive that baffles the inspector like the modern hive with crossed combs and the bottom-board nailed firmly on, unless it is the old box hive with the bottom-board slipped up on the inside and nailed in from the sides. But what's the use of mentioning it, as I have been told with emphasis by good authorities that those hives were not constructed with the view of facilitating the work of the inspector? The accompanying photographs show conditions that inspectors meet too frequently when attempting to inspect comparatively modern hives. There is no branch of rural industry that is treated with such careless indifference by the average farmer as beekeeping.

It may seem paradoxical; but experience bears out the statement that quite frequently the only man in the community who is harboring foul brood is the up-to-date beekeeper who emphatically demands that the inspector come to his community at once and make his neighbors clean up. This is not said in a spirit of criticism, but simply to show that the business beekeeper frequently invites foul brood by buying queens, bees, and appurtenances of the apiary. He himself brings in the disease, and then innocently assumes that it has been carried in by his bees robbing his neighbors' extinct colonies.



Too frequently inspectors meet conditions like this.

I often wonder why more of the intelligent young beekeepers who are striving to get nice apiaries established do

not take to teaching school during the winter months. Teaching would give them pleasant and profitable employment for the part of the year that is not so much taken up with the work of the apiary, and would still leave them their Saturdays to look after the needs and condition of their bees. It would give them a salary as a means of support instead of having to rely on the income from the bees, and therefore hindering and retarding their progress along their chosen line. It gives the young man a prominence and an established standing in the community that is a valuable asset. Teaching broadens the mind, and is conducive to the cultivation of the finer qualities that make up a good clean character.



But what can the poor inspector do?

John W. Love's article in the May 15th GLEANINGS emphasizes a very important and much neglected principle. It is frequently said that if the farmer would keep books and count the cost and returns on the various enterprises that, taken collectively, make up the business of farming, many a farmer would in five years find that his net income had doubled because he had eliminated those things that were losing money for him. Again it is asserted, and not entirely without reason, that if the average business man would run his business in the way the average farmer runs his, he would be in the bankruptcy court inside of two years. How many beekeepers *know* that they are making a cent per pound more out of their honey than they are investing in supplies, labor, interest on the investment, depreciation, etc.? If a business appears profitable when conducted in a slipshod manner, what might it be if a little gray matter were added?

The dearth of honey last summer, followed by the filling of the brood-chambers with aster honey last fall, was the first indication of inevitable trouble. The large number of dysentery-spotted frames and weak and dead colonies loudly testify to the effect of too much aster. It seems to be pretty well established that aster is detrimental in most localities, and a practical means of circumventing it is now in order. Suppose that some of the would-be hive-inventors turn their guns in that direction.

A FIELD OF BUCKWHEAT IN EASTERN MASSACHUSETTS

BY MRS. SUSAN E. HOWARD

Buckwheat is not planted to any extent in eastern Massachusetts. Indeed, it is the exception to see a field of it. My object in planting was for a cover or fertilizing crop to be plowed under.

The second sowing after the first had been plowed in was allowed to mature, and straw was used to cover strawberry-beds. It made an ideal winter protection with the addition of meadow grass. This second sowing was made forty days before the date of the annual field meeting of the Massachusetts Society of Beekeepers which was held at my apiary. As it takes about thirty-five days from sowing to blossom, it was at its best, and was a beautiful sight as it was in full bloom.

The bees work it well from early morning until about 10 A. M., and then again from 4 to 8 P. M. The morning flow was most pronounced, and the field was alive with bees.

Whether there is a cessation of nectar from the buckwheat during the rest of the



Honey for the bees, seed for harvest, fertilizer for the ground.—Buckwheat should be planted more extensively.

day, I am unable to state. Perhaps there was a flow more alluring during the intervening hours.

As I raise bees rather than honey, it served an admirable purpose in that it stimulated brood-rearing during a season when nectar was scarce. To recapitulate, it served to keep the land mellow, kept down weed growth, and conserved the moisture, also supplying humus if plowed in while green.

The blossom afforded honey to bees and afterward seed for harvest. The stalks were used as a winter cover for strawberry-beds, and, in the following spring, well disked and plowed into the ground.

I have had but one year's experience with buckwheat, and so I am unable to state its dependibility as to nectar secretion, but am firmly convinced it should be planted more extensively.

Stoneham, Mass.

A MODIFIED SMOKE INTRODUCTION

BY L. R. DOCKERY

Inasmuch as there has not yet been a method of queen introduction given that is fool proof I will explain the method I have been using the past two years. In that time I have introduced about two hundred queens and have lost only one, and that loss was due to negligence. This method, in addition to being proof against the neglect just mentioned, is so practical and sure that it will commend itself to the specialist. It is practicable under all conditions. I have introduced queens to colonies with fertile workers, those with cells almost ready to hatch, and those just made queenless, with equal success.

The queen should be kept from food and other bees for about thirty minutes. She should never be taken in the hands, but caught or caged by placing the cage over her while on the comb. If she is received through the mails, change her to another cage without any bees or food. To introduce her, give a little smoke at the entrance, then take off the cover and smoke them again. Take three combs from the brood-

nest, and shake or brush all the bees in front of the hive. As the combs are freed of bees, return them to the hive.

When this is done, place the cover on the hive. As the bees pass in at the entrance release the queen among them; and as she passes in at the entrance give her a little smoke, and she is introduced. If the colony has been queenless some time, or if there is robbing going on, the colony should not be disturbed for forty-eight hours.

Wintin, Cal.

A HIVELESS COLONY

BY ANDREW CARMAN

The accompanying photograph is one of a freak scrub of wild honey. I have found and cut 163 bee-trees, having hunted bees ever since I was old enough, and I have never before found a comb similar to the one here shown.



Too careless to look further, the bees had settled on a limb.

Last fall I followed bees to a large sound hemlock-tree about eighty feet high and two feet in diameter at the stump. The tree was growing at the top of the gorge below the Devasego Falls in the Schoharie Creek in Schoharie County, N. Y. While watching the bees trying to find the hole in the trunk where they entered, I discovered the comb shown in the photograph hanging to a limb about fifty feet from the ground. The only protection from the weather the bees enjoyed was the limbs of the hemlock above the comb and the surrounding trees which acted as a windbreak.

The tree was climbed with difficulty, the bees subdued, the limb holding the comb sawed off, and carefully lowered to the ground by means of a light rope.

The comb, deducting for the estimated weight of the limb, weighed forty-four pounds.

Evidently the bees, having swarmed on the limb, began work immediately, not troubling themselves to look further for a more sheltered harbor inside a hollow tree.

Plattsville, N. Y.

FEEDING BEES IN LESS THAN HALF A MINUTE

BY WILLIAM BEUCUS

In the issue for Oct. 15, 1914, appeared an article, illustrating my new combination hive-bottom and feeder. The spring of 1915 was very cold and rainy, and the new feeders came in very handy. They far excel anything I have tried so far—nothing to haul up, nothing to put away. On any day, too cold or rainy for the bees to fly, just fill a pail with warm feed and squirt some in at the entrances. The pans catch it so there is no waste. It is not necessary to move any pieces nor even to stoop much. One hundred colonies can be fed in an hour—in fact, 116 were fed in 45 minutes—less than half a minute to a colony. It's easy fine chair to go to a good show to feed the bees on a cold raw day.

How different it was a few years ago when



Just a jiffy to squirt in the feed.

the spring happened to be bad and the bees ran short of stores. Everything was pressed into service. And then, too, we even filled combs with feed and had to open hives to get them where the bees could get at them. These are the experiences which make one disgusted with beekeeping. It is simply unpreparedness, failure to look into the future and get ready for contingencies. But with foresight, with preparations for unfavorable conditions made, what was before painful is changed to positive fun. In the future, every additional colony of mine will have as a part of its equipment one of these feeders.

Here is another point to consider. Suppose I want to raise some queens, and the honey-flow at the time is lacking or intermittent. I just step out and squirt some feed in at the entrance. It takes only a minute because everything is always ready.

We are continually at war with surrounding forces—forces which are always endeavoring to overthrow the balance and bring death. In the long run, the overthrow is accomplished; but in the span of days allotted to each, success or failure results from anticipating what conditions are to come and making preparations to meet them.

The year 1914 was a complete failure in apiculture so far as surplus honey was concerned, and one of my neighbors told me that he remembered a year when not only had there been no surplus but no honey for wintering. When such a year comes, what a satisfaction it will be to know that every colony is supplied with an equipment to meet the opposing changes. Keeping up brood-rearing in the fall and feeding up for winter can be accomplished with very little labor.

After reading the editorial entitled "How to Feed Bees on the Verge of Starvation, without a Feeder, and Do it with a Minimum of Labor," GLEANINGS for July 1, I felt gratified to think that my bees are always ready for feeding. I have many times fed bees just as described by the editor, and doubtless every other professional beekeeper has also. To me it has always been a disagreeable task to open a hive in cold weather—particularly a hive containing a strong colony. The bees stick to the cover, get into the grass, and an occasional bee alights on my person, crawls under my coat, up my pants, or even under my veil. Under such circumstances I have done considerable muttering in my beard.

Cadott, Wis.

WEATHER, AND LOTS OF IT

BY A. L. BERGQUIST



May 18 in Minnesota.

It has not been all sunshine for beekeepers around here this year. April opened nice and warm; but all of May and up to the present, June 14, we have had unfavorable weather, cold and rainy. The picture shows how the hives were covered up with ice and snow at the cold spell we had May 16, 17, 18.

The clover here was badly winter-killed, so we shall have to look forward to the basswood for a crop of honey this season.

Lindstrom, Minn.

[This picture is interesting at this time in that it shows some of the extremes of temperatures that the bees may have to withstand in the late spring. Good preparation in the fall is a good form of insurance.—ED.]

A PRIMEVAL HONEY-EXTRACTOR

BY P. C. CHADWICK

It recently came to my notice that Riverside County, Cal., has one of the oldest extractors in the nation, and, without doubt, the oldest in the West. The matter of the origin of this machine has a history well worth a place in the annals of inventions—not that there were no other extractors in the market at the time of the manufacturing of this one, for there were a few. But the inventor, Captain Jeremiah Sanders, 87 years of age, had no knowledge of there being an all-metal extractor in existence at the time he conceived the idea of having this one made.

It was made in San Diego, in February, 1875, by a plumber, W. A. Begole, under the directions of Capt. Sanders. In the accompanying illustration may be seen something of the shape and substantial work in this machine.

I had a visit with Capt. Sanders in December, and a pleasant one indeed. Although a man of 87 years, blind, and a cripple for the past fourteen years, his mind is clear and his memory excellent. He took me back over the early days of California beekeeping, when he first came here and began working with bees. He told me of the wonderful crops secured in the early days—crops that Capt. Sanders thinks we shall never see again. He was personally acquainted with both of the firm of Clark & Harbison. Capt. Sanders became interested in bees in 1867 in Johnson County, Mo., and moved to California in the early seventies, going to San Diego County to locate. He first worked for a man by the name of Mitchel, later taking up the work for himself. From San Diego County he came to Riverside County, where he followed the business for a number of years. Fourteen years ago he was attacked by a vicious bull and almost killed, though he recovered to such an extent that he has been able to go with difficulty on crutches.

The can is a very heavy galvanized iron. The cross-bar holding the gear and baskets is an exceptionally heavy casting. The can is in two parts. The upper part, holding the baskets and gearing, has a cone-shaped open bottom, and rests in the lower part, or honey receptacle, telescope style. That is to say, the upper division fits into the lower part tightly. The lower division has an opening for a faucet or plug to allow the removal of the honey from below. This arrangement does not show well in the picture, which was taken at near sundown, and it was impossible to get the light necessary to show all of the parts.



Capt. Sanders and his all-metal extractor which he designed in 1875.

Capt. Sanders has kindly loaned this machine to the A. I. Root Company, and it may be seen in the company's exhibit at the San Diego exposition. Beekeepers should be sure to see this machine when attending the fair, for it not only shows the inventive genius of Capt. Sanders, but also something which has a place in the early history of the beekeeping industry of the state. Many extractors of this type were made at San Diego, and used in the early days in that section. The second machine was made for Mr. Clark of the firm of Clark & Harbison. While Capt. Sanders was not the first to make an all-metal extractor, he deserves a place among inventors, because of the initiative he has shown. Capt. Sanders prizes this machine very highly, as it is the only relic of his beekeeping days he has retained.

Redlands, Cal.

EXPERIENCES WITH QUEENS AND THEIR INTRODUCTION

BY W. M. SMITH, B. A.

As much has been written touching on the introduction of queens by the smoke method it would seem useless to discuss it further. However, as this is the time of the year when such problems are perplexing the minds of beginners, and as I am situated in a novel position, living at the very western edge of the continent, and have been continually importing queens from the East, my experience in their introduction might be instructive, or at least interesting to others.

Some years ago when I started introducing new blood into my original native stock, new problems stood in my way. Queens from the opposite side of the continent were, up to the year 1913, introduced by the cage plan. This worked with indifferent success, if they were introduced before the end of the honey-flow which ends in July with us. But when attempted later, in September or October—that is, after the honey-flow had entirely ceased—there was invariably a large loss running as high as 80 per cent.

When the smoke method was brought forward with such enthusiasm I naturally accepted it as a panacea for all my trou-

bles. In the summer of 1913 I received queens from several different breeders, and promptly undertook to introduce them, upon their arrival, by the smoke plan. The whole dozen which I had at this time were successfully introduced, and the greater majority were laying in two days. Consequently I hailed this as a cure for all past troubles. This was at a time when nectar was coming in quite freely. Had it been otherwise the results would have been different, as I learned later.

About a month later I received some queens and attempted to introduce them by the same method; but I was astonished to find that not more than ten per cent were accepted, due to the fact that nectar had ceased coming in.

Last fall I delayed ordering all my queens till late, and attempted to introduce them by the smoke method, but found them all later carried out to the front of the hive. I then tried the cage plan, but with no better success. Almost exasperated, and with a couple of dozen queens on my hands, I looked in vain for a solution. There was no nectar coming in, and brood in few of the colonies. I put the cages (wire down) over the brood-chambers of a couple of strong colonies, knowing that the temperature was about right for the health of the bees. About a day later I again decided to try introducing them by the smoke method. I removed the old queens one day; and the next morning early, while all was quiet, I ran in the new queens at the entrance after smoking. To my surprise practically all were accepted.

Fired with this success I immediately ordered a dozen more, as I had about that many colonies which I wished to requeen. These did not reach me until October. I now placed the cage with each queen over the brood-chamber of the colony to which she was to be introduced, removing the old queen a day later, then introducing by the smoke method the following morning when all was quiet. All were accepted, and commenced laying, with the exception of one which died later. My experience has shown me that no method will work satisfactorily after queens have been in the mails for a week or longer until all odors foreign to the hive are first dispelled by that of some colony. Apparently it makes no difference whether the queen to be introduced is placed over the colony to which she is to be given (although this is the preferable way) or over any colony, so long as she acquires the odor common to the bee.

It should also be noted that the cage plan will not work here under the above conditions, no matter how long the queen is kept caged before being released, and that the smoke method is a perfect success.

One great trouble I have had with queens mailed across the continent is that there are *never enough attendants*. It must be borne in mind by the queen-breeders that the temperature is not the same throughout the whole journey, but drops low in coming over the mountains, even in the middle of summer, and for this reason queens mailed to this side of the Rockies should be mailed in double-width cages with from 20 to 30 attendants. If there are not enough bees in the cages to keep up the heat when passing through a cold atmosphere the queen will invariably be chilled, which will impair both her usefulness and longevity. Even if she does survive, and commences to lay, she may be superseded almost immediately. It goes without saying, that such queens are an unprofitable investment for the beekeeper. Such are the results here. Is it again a question of locality?

Dewdney, B. C.

HOW TO HANDLE COMBS AFTER EXTRACTING

BY E. S. MILES

One reason why beekeeping is interesting is that there is continually something new turning up. Many of the problems are easy. With a little thought and a little experimenting we come to the "know how." The problem indicated by the title is the one bothering me now. In order to help any one to avoid offering a way already tried, I shall describe those I have attempted. What works well with one person in one place, by the way, will sometimes not work out the same with another person in a different place. What one person would consider a success, another would not be satisfied with.

In saying "after extracting," I mean after the last extracting for the season; for here this takes place in August unless we have a fall flow, which has not been frequent of late years.

I have done as follows:

1. Piled them up in the honey-house and let them stand until the next season.

2. Set them outdoors for the bees to clean up.

3. Set them back on the lighter colonies,



Exhibit of the A. I. Root Company, which took a grand prize at the Panama-California exposition, San Diego.



The exhibit stands at the right of the east entrance of the Varied Industries Building.

with an escape-board, minus the escape, under them, piling as many supers on a hive as would safely stand up.

None of these methods are satisfactory, for the following reasons: The first is objectionable because the daubed honey granulates, and starts granulation too soon in the next year's crop. Worse yet, if there is comb that has contained brood it is quite likely to be ruined by the wax-moth larvæ.

The second method is objectionable because my bees gather on the combs in swarms, and fight over them, killing large numbers of bees. They do not learn to go to their hives at night, but quite frequently stay in large numbers on the combs. The only way I can get the combs in is to do so at night, and then I lose lots of bees. I have tried putting the combs out a little before night, on the theory that the bees would just about get them licked up by dark. Then I could get them in before the moths got around to lay a fresh batch of eggs.

But this will not work with my bees. They start fighting, and the supers are full of bees at dark. I think that, by leaving the combs till they are completely dry, the bees would leave them at evening. However, I do not like the idea of combs exposed to the weather and moths, nor do I care to lose many bees or have so much of an uproar around the place.

The third method is the one I have used mostly, mainly because not so many bees are lost, and because in that way the honey from the combs is given to the colonies needing it. But it has the objection of requiring too much labor, especially night work, and also that it is not feasible on a large scale unless a large number of strong colonies, light of stores, are near by.

My method in this is to put an escape-board, without the escape, on each strong light colony that we have combs for, and, if the weather is not too hot, to contract the entrance considerably. In any case I make the entrance as small as the weather will permit, doing this any time before I wish to put on the combs. Of course I lay the cover on over the escape-board. Then when I wish to put on the combs I start as soon as it is too dark for the bees to fly. Laying off a cover from a hive, I go to the honey-house and take as many supers of empty combs as I can carry, and set on the hive. I proceed thus until I have as many supers on as I wish, putting as many to the hive as will stand up safely, and being careful to have all covers fit down bee-tight. I put on an 8 or 10 lb. stone, or two or three bricks, to insure the covers staying on.

By morning the bees will have the combs pretty well licked up, and will have recovered from their excitement enough to keep out robbers.

But to get the combs off is another job requiring about as much time and labor. If one has an assistant he goes with the escapes, and a smoker well lit up, and one lifts the pile of empty supers enough at one end for the other to force in several good puffs of smoke and insert an escape in the escape-board. Then after a day or two the dry combs may be taken back to the honey-house. If robbers are bad and the weather warm, this has to be done after dark also.

None of these methods protect old brood-combs from the moth-larvæ. If one uses new combs—that is, combs that never contained brood—the moth will not damage them here, according to my experience. But in different manipulations I frequently have a set of old brood-combs that it is desirable to fill and extract. Every fall finds me with several on hand. They are valuable; yet how to care for them, without too much time and labor, is a problem I have not been able to solve.

Put these back with the bees till cool weather. This would protect the comb, but is objectionable here for this reason: We often have about enough flow after basswood and clover to fill a colony up in good shape for winter if they are crowded down to one set of combs as early in the fall as possible without swarming troubles. The honey so gathered is, with few exceptions, the very best of winter stores. But by giving more ready-built combs, and especially old brood-combs, the bees will continue to breed a little heavier, using up a part of what would otherwise be winter stores, and scattering the rest through the combs in such a way that no one set would contain enough for winter.

It is probable that, by leaving these colonies till late in the fall, they would move all the honey into the top story. This is not practicable with a large number of colonies to care for, as many colonies in some seasons would be found light too late for best results in feeding.

I have gone thus into detail hoping to open up a subject that I wish very much to get more light upon.

Dunlap, Iowa.

THE FOLLY OF TOO RAPID AN INCREASE

BY "OBSERVER"

Did it ever make you sore because the bees were so strong in the spring at clipping time that you could hardly find the queen?

When one does not wish to unpack colonies until nearly time for the honey-flow, a pretty fair idea of inside conditions can be determined by noting the relative numbers of spring-hatched bees and "pioneers" that are going in and out at the entrance, and noting whether they are carrying in pollen or not.

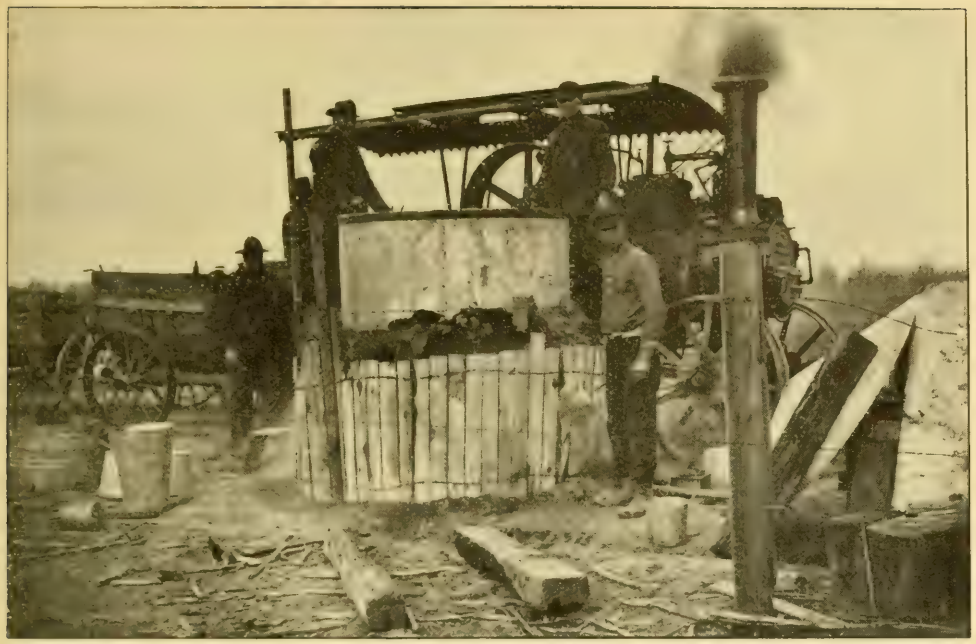
I wonder how many beekeepers are observing "dandelion day." The dandelion usually yields but little surplus, but yields a wonderful tonic of nectar and pollen that makes the weaklings strong.

Some good work for the beekeepers might be done by the forestry departments of our state colleges and experiment stations by advocating the planting of nectar-producing trees for shade purposes.

The following is a true story, and worthy of consideration by all beginners. In the spring of 1913 a husband and wife, both of more than average intelligence and ability, secured a couple of stands of bees. They determined to increase as much as possible until they would have sufficient numbers to yield a considerable return. By June, 1914, they had 38 strong nuclei. These were formed by dividing the colonies as early as possible. Those which were divided in the spring were the product of a division the previous season. The appearance of an increasing number of dead larvæ in the hives finally alarmed the enthusiasts so much that a sample comb was sent to Dr. Phillips, who pronounced it American foul brood. The tin-tube method of treatment was then used, with the result that only two were cured. This spring there are left three colonies and fifteen nuclei. By good fortune one colony is strong, and free from disease. The rest are diseased and weak. Over $300 has thus far been spent on the venture. As Aesop says: Moral.

The division method of increase will surely increase the number of cases of foul brood if it is present in the original colony.

If in doubt, practice natural swarming, hiving the swarm on ¼-inch starters. Don't try the tin-tube method of transferring on a weak colony. Even success in other lines of business, and great natural ability, must be supplemented by real bee experience in building up a profitable apiary. Don't hurry the business. Starting with one colony this spring, and doubling the number each season, granting that all increase lives,



A heavy jacket was built around the tank.

at the end of the ninth season the product would be 512 colonies. That ought to be fast enough increase to satisfy almost any beginner.

Use the Division of Apiculture, U. S. Department of Agriculture, frequently, in determining the cause of death of larvæ. If your state has an inspector, use him—that's what he is for.

Madison, Ind.

MELTING AN 8500-POUND TANK OF CANDIED HONEY

BY E. F. ATWATER

As our crop last year was light we bought several lots of honey to supply our demand, and among these lots was a tank containing 8500 pounds of alfalfa and clover honey, candied in one solid, cold, stubborn mass. This honey was to have been delivered to our shop, where we have our melting and bottling plant, but was found to be so hard that it was considered unprofitable to try to dig it from the tank.

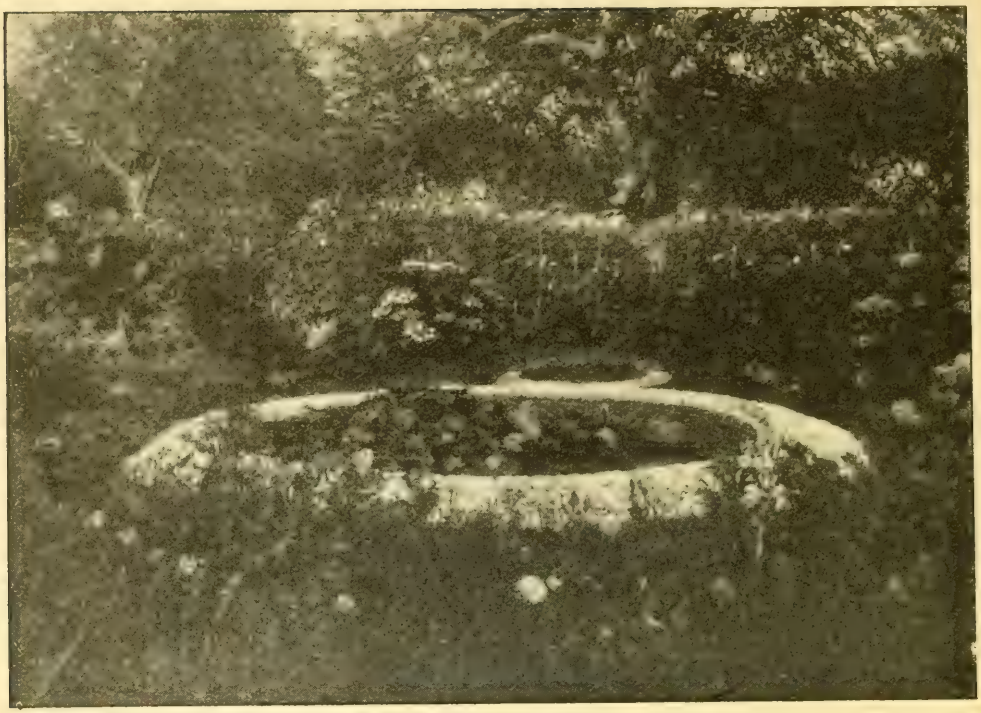
Finally, 1 x 4 x 4-ft. boards were made into a wall around the tank, about four inches from it; then, six inches away, another wall was built of the same material, and the space between the walls was filled with dirt, leaving the air space around the tank. Then canvas was laid on top of the wall and against the tank, and covered with dirt.

The honey-gate was removed and a pipe four feet long was screwed on to the end of this pipe. Around the tank, before building the wall, half-inch pipe was bent, with openings at intervals, and a pipe extending out to receive the steam. The tank rested on pieces of inch boards, not too close together, so steam could get beneath. When all was ready a traction engine was hired, and steam was shot into the air-space around and beneath the tank.

The honey around the sides soon melted, and the chunk settled a little. Two or three men were kept busy chopping at the chunk with spades. The small pieces slid down the sides and were soon melted. The honey was allowed to accumulate, for by stirring there was no overheating.

Occasionally a few hundred pounds were drawn off, strained, and canned. In about 1½ days the entire lot was melted without injury.

Meridian, Idaho.



The bees drink on the lily pads.

A LILY-POND FOR A WATERING-PLACE

BY REV. J. N. LEWIS

A lily-pond which almost any one can make is an ideal watering-place for bees, as well as being very ornamental. The birds utilize it for a drinking-fountain and bathing-pool.

This miniature pond as shown in the picture cost for material exactly $2.00, and the work I did myself. The only expense was for four bags of Portland cement at fifty cents each. I simply dug out an excavation the size and shape I wanted my pond, and plastered it with two coats of cement, letting the first coat dry hard before applying the second. The rim I covered with clam-shells, which can be had for the gathering in this part of the state. If shells are not to be had, small pebbles can be used. When all became dry and hard I put in six inches of rich loam with coarse sand on top, and planted pond-lily roots, which grow and bloom from May to September year after year. The pond shown in the picture I made six years ago, and about all the attention it needs is covering in winter to protect from freezing, and supplying with water to replace evaporation. Usually the rainfall keeps it full. If not I have a well near at hand, and it is a small matter to supply all that is needed.

The lily pads make perfect floats for the bees, and they are on them by hundreds all through the summer season. It is situated about twenty feet from the apiary, and the bees have a constant supply of water near at hand.

North Westport, Mass.

THE HOME-BUILT TRACTOR

BY XENO W. PUTNAM

Every tractor, home or factory built, consists of three general groups—the power plant, or engine, the tractive element, or drive-wheels, and the transmission, which diverts the energy of the one into the other. The last named is made up of several subgroups which depend for their arrangement largely upon the engine used and the man who uses it.

Generally the best engine for the home-

made tractor is the one that the builder has at hand. If it runs steadily, without overheating; if it is handily adjusted and repaired, and easily controlled, so much the better. Most of the faults of the engine work their vengeance either upon the operator or the rest of the machinery, though they may not actually disqualify it for tractor purposes. Some of them may be absorbed in the transmission, if the builder is skillful, although probably the transmission will gain nothing because of the extra duty. An automobile engine, for instance, making 1000 revolutions per minute at the crank-shaft can be reduced to about the normal speed of 25 in the drive-wheels through the transmission gearing; but part of the latter will have to turn pretty fast, and will wear out that much quicker; also an extra shaft (with its attendant loss through friction) will probably be necessary in order to bring the speed down to the required point.

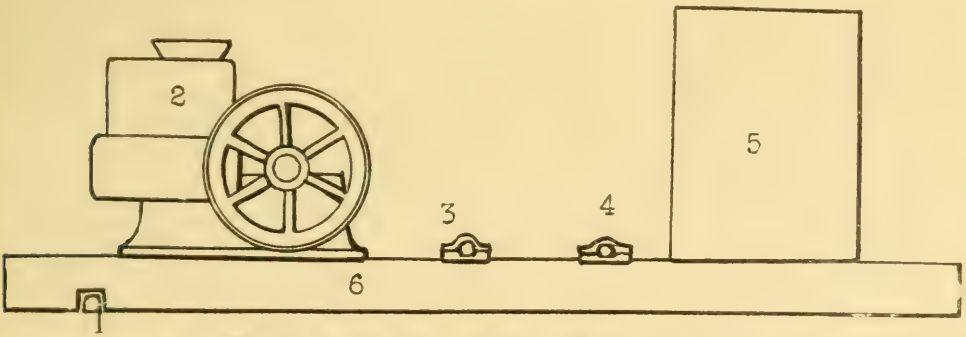


FIG. 1.—Arranging the parts of a well-balanced tractor
1. Rear axle. 2. Engine. 3. Countershaft bearing. 4. Differential-shaft bearing. 5. Water-tank. 6. Tractor sill.

It is better, if possible, to set the engine with the crank-shaft parallel to the drive-wheel axle, then there will be no bevel gearing interposed, and no end-thrust to contend with. Set the engine just in front of the rear axle—the closer the better. It is then within easy reach of he operator's platform, and the tractor balances well. About two-fifths of the weight of the tractor should come upon the front wheels in order to hold them firmly enough to the ground for guiding purposes. If much less than two-fifths, the tractor may work all right when running empty on the level, and the front truck lift clear of the ground, or nearly so, when traveling up hill or on a heavy pull. Of course it would then be impossible to control the tractor. But if the engine is placed too far forward the tractor will steer unnecessarily hard because of the heavy weight on the steering-wheels, and at the same time the tractive power is impaired because of the weight removed from the drivers. Three-fifths of the weight is needed there, to hold the grouters (or cleats across the face of the drivers) snugly in the ground. This balancing of the parts can usually be best accomplished by placing the engine near the rear axle as in Fig. 1, the transmission in front of it, and the water-tank still further ahead, its contents in some measure regulated by the weight required on the front wheels. It is also best not to set the engine back directly over the axle, as every jar occasioned by rough and stony ground is communicated to it without any possibility of the sills absorbing part of the shock. In fastening down a tractor engine, special care is necessary.

If the crank-shaft is not exactly parallel with the rear axle, some wheel or shaft in the transmission train will have to be a trifle out of line with something else in order to correct the fault. If a part of the drive is chain transmission a little leeway is possible, though it is best to have even chain-and-sprocket members all perfectly aligned. If gear-wheels entirely are used, the alignment cannot be too carefully made.

After the engine is once set it must be so securely bolted that it cannot by any possibility shift its position in relation to the axle or any of the transmission bearings. Ordinary care may not be enough, for the jar and vibration are far greater than in the case of a stationary engine. Just how the fastening is to be done depends upon the bolt-holes and the engine-bed, but it must be done thoroughly. If there is any chance to pass sub-sills across the top of the engine-sills, and then bolt these to the side sills of the tractor, it should by all means be done. Half-inch bolts are usually about right for light tractor work, and it is safest to use a washer at each end, and two nuts instead of one for

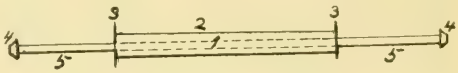
holding each bolt. *Never use nails in fastening a tractor together.* They are certain to loosen under the continuous vibration.

For a one to three or four horse-power engine, tractor wheels taken from a worn-out mowing-machine will answer nicely. They are strong enough to stand the strain, have grouters ready cast upon their face, and will give very fair tractive power. The standard mowing-machine wheels weigh between 60 aud 80 pounds, are 30 inches high, and have about a four-inch face. Any junk-dealer will be glad to furnish good mower-wheels at a cent a pound, which is three times or more what he pays for them to the farmer owner.

If a heavier tractor is wanted, binder wheels are the thing. They will answer with engines up to twelve or even fifteen horse power, and of course give very much greater tractive force, both on account of their greater weight and because of their wider face. Cast binder-wheels weigh around 165 pounds each, and the standard wheel is 36 inches high with nine-inch face. Junk-dealers supply them for about the same as mower-wheels, and get them for the same of farmers. As one binder has but one drive-wheel it is necessary, when purchasing them, to see that they are alike in size.

Approximately all binder and mower wheels are bored for the same size of axle, 1½-inch cold-rolled steel being used. Some binder wheels are a sixteenth to an eighth inch smaller; then the shaft has to be turned or filed down to the wheel bore. If filed, the stock must be removed from all sides alike, and the shaft kept true. It is a good plan to keep the shaft revolving slowly (by hand) while filing. Cut first with a coarse file or rasp, then follow with a medium coarse mill-file, about 12-inch, using both in a diagonal sweep across the shaft and use the opposite diagonal for each of the two cuttings. Finish with a fine light file held at right angles to the shaft, and so filing square around it. This will put a smooth bright polish upon the metal, which may be further trued up with fine emery dust upon a cloth when all the surplus stock has been filed away.

If more than a ten-horse-power engine is to be used, or if that is a heavy one, it is best to measure off at each end of the shaft the length of its own wheel hub plus the cap and room for about four washers; then cut a length of 1½-inch water-pipe to cover just the space between the two wheel-spaces. A pipe of this size cut to 43-inch length cost the writer 52 cts. recently, but should be had for less money. Drive the rear axle through this until the pipe is in the center as in Fig. 2. Follow with two wrought washers at each end, then slip on the binder-wheels, two more washers, and the regular mowing-machine-wheel cap with cotter-pin dropped into place, and the rear axle,



the tractive member, is completed. As the axle itself is easily obtained from an old mowing-machine, the holes are pretty certain to be already cut for the cotter-pins. Junk-dealers will furnish mower-axles of various lengths at one cent per pound or less, and 1½-inch shafting of this sort weighs about six pounds to the foot. Usually a five-foot shaft is long enough, but that depends upon the size of the engine.

It is assumed that the wheels, whether mower or binder, have the sprocket or gear wheel still attached to them—this, of course, being turned to the inside in slipping on the wheel. Most binders are now run by chain and sprocket, and a good many mowers by gear. Sprocket-drive binder-wheels are the best, because, when chains are used in the tractor drive, more play is allowable, and a slight departure from alignment may be taken care of by the chains. In excessively rough ground, too, there is less tendency to cramp the transmission mechanism if one of the links connecting the engine with the ground-wheels is by means of sprockets and chains.

In the next paper, working details will be given for the tranmission machinery, the differential, clutch, countershaft, and reversing appliances, etc., within which the real work of the home-tractor builder makes its appearance.

Harmonsburg, Pa.

[This is the second of a series of three articles by Mr. Putnam, entitled The Home-built Tractor. The third will appear in an early number.—Ed.]

Combine Simmins and Caging Methods

We have all, perhaps, heard of the man who boasted that, by the use of a certain make of stove, he was saving half his fuel, and was asked by a wag why he didn't buy another stove and save it all.

After reading J. T. Todd's article on the Simmins method of queen introduction, page 581, July 15, and editorial remarks, I am constrained to ask, "Why not combine the Simmins with the time-honored caging method?"

Cage the queen the usual time in the hive to which she is to be introduced, and take her out for her thirty-minutes' fast. During this time the hive will become quiet. Then introduce by the Simmins plan.

Asheville, N. C. O. Bromfield.

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

A fellow from the city came out the other day to visit the bees. Had a fly-swatter with him. They put him out on the third strike.

Excessive Swarming in Spite of Giving Room and Enlarging the Entrances; What was the Cause?

I wish to give my experience with bees this spring which is out of the usual order of things with me. My bees came through the winter strong in numbers but rather light in stores. Fruit bloom came on in gleaming, with plenty of dandelion bloom. As I had about all the bees that I cared for I set out to keep down swarming as much as possible. I have some ten-frame hives; and as I run mostly for bulk comb honey I got full-depth supers for these and put them on early. I also gave them large entrances. Part of my eight-frame hives I treated in the same way—that is, I put on supers with full-depth frames all equipped with starters—not full sheets of foundation. But in spite of all I did, swarming began the last of May and has kept up without intermission this far in June. Now, the unusual thing is that one swarm came out, and, without settling, went into another hive containing bees in the same row. At another time a swarm came out, and, without clustering, went into a hive where I had just put a swarm that had clustered. The early swarms were large, but the late swarms have been rather small so I have been doubling them up and putting two of them in the same hive. Is there any objection to this practice? In only one case have I found any trouble, and then I found about a pint of dead bees at the entrance after two swarms had been put together. Now, as I have written before, I am a farmer-beekeeper and keep bees largely for pleasure and because I like bees. And we'll not go to the trouble of practicing "shook swarming" or looking through the hives to cut out the queen-cells. What I want to know is: Aside from these methods have I not done about all that I could do to keep down swarming? I might say that we have a good crop of white clover, but the weather has been cool and very wet for the past month, so that clover, up to date, has not yielded much. The bees have simply swarmed out, leaving the hives light in stores. So far as I can determine from an examination, not a pound of surplus has as yet been stored, and almost no foundation has been drawn out. After more or less experience with bees for more than thirty years I have never before seen the like.

Mendon, Mo., June 21. NATHAN CLAIR.

[We can hardly understand your trouble unless it was because the conditions in your locality were decidedly favorable for swarming. A light continuous flow of nectar will stimulate swarming much more than a heavy one. You say you secured no surplus, but that there was just enough honey coming in to keep the bees in a state of excitement.

In the matter of giving extra room, you rather overdid it. You gave too much and too early. Very often bees will not enter a super with merely starters. This is a common experience in the production of *comb* honey; and it often happens in the case of extracted when frames with only starters are given. Your bees probably went right on building swarming-cells when the brood-nest was crowded. If you had put on shallow supers with drawn combs just at the time when the bees needed them, or given full sheets, it would have been better. Apparently you have a strain of bees that is inclined to swarm. If they have a preponderance of black blood, Carniolans, or Caucasians, they will swarm much more than pure leather-colored Italians. Usually, giving room not too fast and not too early will have the desired result, providing, also, the bees are pure Italians. But even then it is wise to look out for swarming-cells. These will usually force out swarms, no matter what the conditions are. Next season, or before that time, rather, we would advise Italianizing your stock; and just about as the bees begin to fill their brood-chamber, look over the combs for any indication of swarming-cells. If you have only full-depth supers, take out two or three frames of brood from below, replacing them with full sheets of foundation, and fill out the empty space in the super with empty combs or full sheets of foundation. —ED.]

Following the Swarms

My house is situated on a site overlooking the beautiful Connecticut River at Holyoke, Mass. My yard extends back from the house about 200 feet to the brink of a deep ravine with very steep banks. I had three colonies of bees in my yard.

After dinner I was busy near the house when my attention was called to the bees by three painters who were working for me. I at once saw that I had an early swarm going off, and followed them as well as I could out of the yard and down the bank of the ravine. The foliage was so thick on the trees that I lost sight of them but could hear them humming. After a time I succeeded in seeing the cluster of bees up in a maple-tree about 70 feet above the base. The tree grew at the very bottom of the ravine.

I knew that I could not climb up to reach them, so I returned to the house and asked two of the painters, who were young fellows about 18 or 20 years old, if they would assist me. They were only too glad to have the diversion and experience.

We took down a hive filled with empty combs in

frames, a cover, a bottom, and a sheet. One young man climbed up with a handsaw hung in his suspenders, and had gloves and bee-veil on. After a hard climb he succeeded in reaching a position where he could saw the limb off, but he could not hold it. Its length and weight, with the bees, was too much, and he had to drop it. The two of us underneath received a shower of honey-drops. The few bees that reached the ground quickly joined the swarm in the air.

Soon they commenced to cluster again on a limb of a tree near by; and after waiting for them to settle, the other lad tried his luck at it but with the same result. After the second tumble they formed again on the first tree, and the first man tried again, but with no better success. Once more they were all in the air.

While we were watching them we noticed that they were alighting on the lad's hat in numbers, and soon they began to cover his hat and veil. I advised him to keep still as long as they were not angry and did not sting him, which he did. When most of them seemed to cover his head completely I told him to come down carefully and not jar them any more than necessary and I would shake him in front of the hive. After he had descended very slowly we had to lead him to the hive, since he could not see through the cluster of bees. We had him place his head on the sheet. Very soon he drew out of the hat and veil and we had the pleasure of seeing them march into the hive like a drove of sheep, and the young man did not get a sting.

While we were intent in our watching the bees enter the hive we did not give any thought to the remainder of the bees in the air until one of the men happened to look up. He exclaimed, "Well, we haven't all of them—look there!"

Sure enough, there was a cluster of good size away up high, enough to be a swarm of itself.

So the fourth climb was made, and I went to the house and secured a rope to let them down by. We were successful in this method, and had more fun in seeing them also go into the hive in orderly manner. About 6 o'clock we carried the whole outfit up to the yard. My new colony went to work the next day in earnest.

Holyoke, Mass. CYRUS H. TAPPER

What Causes the Bees to Ball their Queen Every Time the Hive is Opened

I have about thirty hives of bees, or more. Last year I bought a few queens and introduced them with smoke with very good success; but when I would go to open the hive to see if they were laying, even after a week or two weeks, they would ball the queen, and oftentimes kill her if I was not very careful. I thought it was on account of the dry weather, for they used up all their honey, and some of them I lost on account of its being so dry.

This year they have been able to gather white-clover honey pretty steadily, and yet they seem to want to ball the queen—not in all of them, but in a great number, when I went to look through.

Last Saturday I smoked one hive, which covered five frames with brood and honey, and took some empty frames out in a hive-body above the one I had placed there to keep the worms out; and when I went back to get more frames they had the queen balled; and at other times, after giving them a puff or two of smoke, and lifting a frame up, they would start after the queen and ball her. I have known them to be laying, and on going through the hive the next time the queens would be gone and queen-cells started. They do not seem to want to sting me, but only the queen.

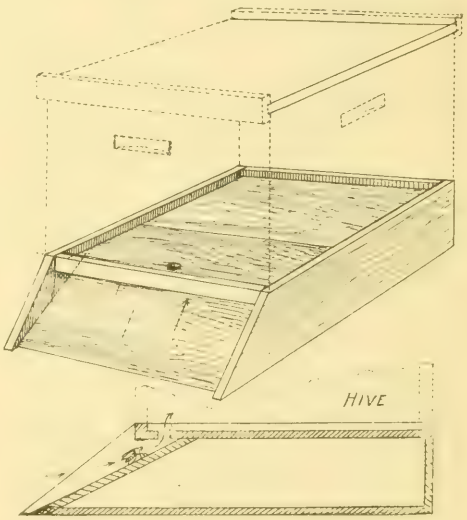
New Castle, Pa., Aug. 9. JAY C. WHITE

[It is not clear to us whether this trouble of balling the queen every time the hive is opened is confined to one colony, to several of them, or to all of them. Sometimes the trouble is undoubtedly due to the queen, and at other times it is due to the peculiar temperament of the colony. We have known colonies (but the cases of them are very rare) where, several times, when the hive was opened, the bees would ball their queen. Apparently disturbance annoys them, with the result that they seem inclined to lay all the blame on the queen. But it is seldom that such balling results in the death of the queen. We have known of other cases where the queen was so timid that, no matter what colony she might be in, she would squeal when the hive was opened, and the bees would proceed to ball her. A queen that shows fright, and tries to run, is much more liable to be balled than one that acts in a perfectly natural and normal way.

If several of your stock show this balling tendency, then we should look back to a common origin—that is to say, back to some grandmother that was the mother of the queens in those several colonies. When the old bees die off the trouble should disappear.—ED.]

A New Hive-stand

I am illustrating a model of a device which I am using for a hive-stand. I think it is particularly well adapted to city apiarists. The bees seem to like it. Painted green, it has a clean and substantial appearance and gives a finished look to the hive, which is not the case with hive-stands generally.



The entrance is under the hive.

The entrance being back and under the hive, the guards are not annoyed by objects passing the hive, thereby reducing the danger of stings. As the entrance is under the hive, the stand also forms a portico; and in bad weather the bees fly right in out of the wet.

Toledo, O. T. J. FROST.

Never Again on Aster

My bees are not in as good condition as usual or as I could wish. The situation is due largely, I believe, to aster winter stores, coupled with cold, wet, high winds in the spring. I shall not winter my bees again on such stores.

I never had hives so spotted before nor so much aster honey as last fall.

Ellwood, Ind. E. NEILSON.

A. I. Root

OUR HOMES

Editor

And Pharaoh said, Who is the Lord, that I should obey his voice to let Israel go? I know not the Lord, neither will I let Israel go.—Exodus 5:2.

At our Thursday prayer-meeting our good pastor informed us a request had been made that our prayer-meetings between now and the Ohio election on Nov. 2 be devoted more or less toward the work of making Ohio dry. I do not know whether all denominations aside from the Congregational are requested to act in harmony with the above; but God grant that it may be so.

I presume our readers are sufficiently acquainted with the book of Exodus so that I do not need to tell the story in detail. The Israelites were groaning under the oppression and bondage put on them, and Jehovah heard their prayers and commissioned Moses to intercede for God's people. Moses was reluctant to undertake the task. He probably feared he would lose his head as soon as he made known his request, and our text is Pharaoh's reply. Like the kings of the present day—at least most of them—Pharaoh was proud and stubborn, and said, "Who is the Lord, that I should obey his voice?" Now, if kings and princes only, stood up against God's command it would be a better world than it is now. While I am loyal to our good president, and thank God almost every day that we have a Christian man at the head of our nation, I still have reason to feel that this Christian man is not permitted to have his way in some things. As I write, the whisky party still rules over us, and with its millions of ill-gotten gains defeats us again and again as Pharaoh apparently defeated Jehovah again and again. In order to make him let the people go, Moses, by God's command, turned the river Nile into blood. Then Pharaoh finally gave up and promised to submit to Moses' request. But he forgot or *ignored* his promise. Next came the plague of lice and flies, but with apparently no better results; then the plague of boils and blains; the plague of hail; the plague of locusts and of darkness. But Pharaoh was still contrary and ugly. Last, but by no means least, was the slaughter of the first-born. Then Pharaoh apparently gave up and told Moses to get out of the way with his people. I presume likely Pharaoh had some wicked counselors—some who were in league with Satan just as the United States of America has *some* such counselors just now. They told Pharaoh things would be in bad shape without the Israelites for servants. Perhaps they suggested that these troubles in the past had all gone by, and poor foolish Pharaoh, blinded by Satan and Satan's allies, rushed to destruction, and God's people *rejoiced* over the miraculous deliverance. I hardly need say to the followers of the Lord Jesus Christ and to those who love truth, honesty, temperance, and purity, that a *Pharaoh* is standing over us right now in this twentieth century, and loading us with grievous burdens—burdens that we have brought on ourselves because we have "forsaken the living God," and are letting idols of various sorts come in between us and our heavenly Father. Punishment has come again and again in times past, and we as a people repent and reform for the moment, but soon become so busy with our idols that we drift back again.

A few years ago a great school building full of children was burned up in Cleveland, and such a reform was started in the way of better arrangements for schoolchildren in the case of fire that even away down in Bradentown we were roused up. As soon as I saw the account in the daily paper I remembered a two-story school building in sight of our Florida home; but almost before I could bring the matter up in our prayer-meeting the carpenters were at work fitting up good substantial outdoor stairways—two of them; and I believe such was the case over nearly all the United States. Much as the fathers and mothers of our land love their children, they had become stupid and forgetful. Another disaster in Chicago taught the whole wide world, almost, the folly of having the doors of public buildings swing inward, so that when a panic occurred the doors could not be opened. Just now, go where you will, you will find the doors of such buildings open outward, and there are plenty of exits also. I believe the laws of our land demand it. "Safety first" has become a watchword; and there is some dispute as to who first started it. The great Pennsylvania Railroad Company claims to have originated the idea some eighty years ago, as you will notice further on.

When the Titanic disaster occurred, I said, just as soon as we got the first particulars, that *whisky* was at the bottom of it; and we soon had facts, if you remember, to show it, but the truth was carefully suppressed and covered up. England did not relish the idea of having it go abroad that her partiality for beer or strong intoxicants lay at the bottom. I believe a careful investigation has been made, and the entire

passenger-carrying vessels of the great ocean have been overhauled and looked into better than ever before. I have not learned yet, however, that England has made any such law or rule as Secretary Daniels has at the head of our navy.

And now we come down to the Eastland. I said as before, as soon as I got the particulars, that it was *Chicago beer,* and the Chicago fashion of having it on board our *excursion steamers* that was at the bottom of *this terrible* disaster; and, as with the Titanic, it seems our daily papers generally have been induced to keep the full truth out of sight. Our Anti-saloon League organization, however, is not afraid to let the people have the truth. See the clipping below, from the *New Republic,* published at Westerville, Ohio:

EASTLAND DISASTER REVEALS SCANDAL.

That promiscuous drinking, gambling, suggestive dancing, and general immorality was permitted on board the ill-fated Eastland and other excursion boats running out of Chicago, is the conclusion of the investigators for the Juvenile Protective Association, within the last few weeks.

The report further reads:

IMMORALITY.

Conditions bad; young couples embracing publicly; liberties taken; staterooms used frequently under suspicious circumstances; men and women of doubtful character mingle with girls for purposes which are not considered good.

Two of the engineer's force were drunk, and one passenger passed two bottles of beer to the engine-room. The watch was right there and saw this, but did not interfere.

Four cases of drinking were noticed on the upper deck, two of the parties being minors (motorcyclists). Two other young fellows were intoxicated also.

The girls who did not appear to be 18 drank beer. Beer was sold in two places. There was a regular bar in the front of the hold. There was another bar in the rear of the hold. Beer was sold on the floor below the dance-floor.

Here is something more from the *Plain Dealer:*

BLAMES BEER FOR UPSET.

It wasn't the crowded condition of the Eastland that caused it to topple, and it wasn't faulty construction of the boat, according to one survivor of the disaster who has communicated with investigators. It was the falling of a three-ton refrigerator filled with beer, he argues.

"When the refrigerator upset, the boat began to list," he said to-day.

You will recall the management of the boat was severely censured, or *is* to be censured, for having the apartments that contain the water ballast empty—especially at a time when it was so very much needed.

From the above we see that two of the engineers were drunk when the women and children were overloading that great vessel. Very likely it was the business of *these two* to see that the ballast was safe and correct for such a time, and properly cared for.

There has been quite a little argument, pro and con, as to whether our labor unions should vote wet or dry. May God be praised there is at least one journal—the journal that represents the blacksmiths, that is not afraid to speak out.

A LABOR JOURNAL HITS THE SALOON.

Our law-makers have legalized the whisky business (and one of the most inhuman combinations known to man is the Whisky Trust), and made our national government a partner in the business. It seems strange that, after tracing so much poverty and crime direct to the saloon, the American people do not rise *en masse* and obliterate it from the face of the earth. No one who keeps pace with the times can deny that the saloon is responsible, either directly or indirectly, for nine-tenths of this poverty and crime. No one can deny that it is whisky that has made the coward a demon who took the life of his fellow-man. No one can deny that in nearly every walk of life its baneful influence can be traced from the United States to the almshouse and the penitentiary. No well-advised trades unionist can deny that a greater part of the internal quarrels and bickerings among trades unionists have been concocted in the back rooms of saloons. The greatest curse to the labor movement has been the saloon, and it is high time that the labor leaders get together and forever divorce the trades union movement and the saloon influence.—Editorial in *Blacksmith's Journal* for December.

"GOD GIVE US MORE SUCH JUDGES."

Just of late good people have lamented the fact that we have even judges who are on the side of the wets; but, may God be praised, the judges, (at least *some* of them) are "coming our way." The following was sent us by Miss Minnie J. Ellet. She puts on the heading.

JOHN BARLEYCORN, A DESTROYER OF HOMES, HAS CAUSED 200,000 DIVORCES IN THE UNITED STATES IN TWO DECADES.

By William N. Gemmill, Judge of the Municipal Court of Chicago

Booze is the mother of crime. It gives life and sustenance to slums, gambling-dens, and "pay-off joints." It nerves to his deed the homicide, the stick-up man, the burglar, the thief, and the thug. It fires the brain of the prostitute and the panderer. It feeds and inflames the passions of the weak-minded and the degenerate.

I have tried an army of 50,000 human derelicts, most of whom were booze-soaked. With faces red and bloated, with eyes dull and languid, with bodies weak and wasted, with clothing foul and ragged, this vast army is forever marching with unsteady step to the graves of the drunkard and the pauper or to the prison and workhouse.

I have looked into the tear-stained faces of a still larger army of fathers and mothers, brothers and sisters, wives and husbands, as they have pleaded for the miserable wrecks that booze has made. I have seen with this army ten thousand pale-faced, hollow-cheeked, ragged, hungry, and starving children, cursed by booze.

A BREEDER OF CRIMINALS.

I have observed that every bandit crew that goes forth to murder starts from a saloon; that every panderer has his rendezvous in a grogshop; that every den of thieves makes its victims drunk before it robs them; that every house of prostitution has its bar or is in partnership with booze; that every gambling-den either is in a saloon or sustains a close relationship with one; that the pickpocket "trust" is housed in a saloon; that the "pay-off joint" for

the crook and the crooked policeman is in a saloon; that the professional bondsman and character witnesses for thieves and holdup men are saloonkeepers or bartenders.

Booze has caused 200,000 divorces in the United States in the last twenty years, and adds 25,000 more to this number every year. It divides more homes, fills more jails, and empties more churches than all other influences combined.

Judges, legislators, mayors, governors, and even presidents sit dumb or quail in the presence of this monster which enters millions of homes and leaves them desolate.

I have witnessed daily its ravages after it has spent its wild fury upon the helpless bodies of women and children, or after it has reaped for a night, in the public dance, its harvest of virtue, now dead forever. I have observed that the last man to be employed and the first to be discharged is the victim of booze.

Booze never built a park, a playground, a school, or a church, but is the enemy of them all.

War may be hell; but where it slays its thousands booze destroys its tens of thousands.—*Chicago Herald.*

The way in which the various railroad companies are coming out for prohibition is certainly a cause for thanking God. Below is something that, if I understand it, applies to all the railroads in the United States, or pretty nearly all of them. Read it, and thank the Lord for it when you get through.

I have before made allusion to the Pennsylvania Railroad Co. The following, which I have clipped from the circular the Pennsylvania road is sending out, ought to be given to temperance workers for their encouragement:

AS TRAINMEN SEE ALCOHOL.

(From the *Railroad Trainman*, official organ of the Brotherhood of Railroad Trainmen.)

Railroad men throughout the United States have received a document dedicated to "the well-being of the general public." It is from the pen of a "safety first" advocate. It is a New Year's pledge, circulated by the Frisco system. Summarized it is as follows:

"Alcohol: It is bad company and unsafe to be with. It throws switches wrong; it reads orders wrong; sends orders wrong. It receives orders wrong; it calls red white; it never calls white red. It makes caution orders without effect; it makes slow flags without color.

"It makes one meeting-point another. It makes wakeful men sleepy.

"It makes duties dangerous, hot boxes cold, rough journals smooth. It makes pilots and footboards deathtraps. It makes good men bad men; it makes two limbs one, and it makes widows and orphans. It is against safety. Unsafety is its name.

"Statistics show that it has killed more people than all the wars of the world since the dawn of history.

"It has been said and proven that it sank the Titanic."

THE PENNSYLVANIA RAILROAD SYSTEM: INFORMATION FOR EMPLOYES AND THE PUBLIC.

The Pennsylvania Railroad System carried approximately 180,000,000 passengers in the year ending June 30th, and not one was killed in a train accident.

The feat of carrying about half a million passengers (on 26,198 miles of track) every day without a single serious mishap cannot be attributed to mere good fortune.—Philadelphia, Pa., *Press*, July 13, 1915.

WHERE "SAFETY FIRST" REALLY STARTED.

Many people and railroads claim to have started the "Safety First" movement. To prove its right to this distinction the Cumberland Valley Railroad—a part of the Pennsylvania System—quotes from the Minutes of a meeting of the Board of Directors held in 1838, which said:

"The following preamble and resolution were offered by Messrs. Berlin and Watts, and agreed to, viz.:

"'This Board deem it a consideration of the first importance that every possible precaution should be taken for the protection of the lives and safety of individuals traveling upon our road, and that, as a primary step to the attainment of his object, habits of intemperance should be discouraged in all persons who have any connection with conducting business of any kind upon the road. Therefore,

"'*Resolved*, That no person shall be employed or continued in the service of the Board whose habits of intemperance, either permanent or occasional, are such as to hazard the safety of passengers upon the road or property carried upon it—and that the Board hereby charge the Chief Engineer and his assistants with the special duty of enforcing attention to this resolution.'"

From the above you will notice the management of this road has firmly shut down on all employees who even *occasionally* get drunk. Let us patronize the Pennsylvania whenever it is possible to do so.

Our daily papers are also coming along slowly into line with God's wishes and God's commands. We can rejoice also, and thank God, for what the leading physicians and boards of health are doing. Read the following:

Since January 1, 1915, twenty-four daily newspapers, according to the records of the Temperance Society of the Methodist Episcopal Church, have barred from their columns liquor advertisements. This is in addition to the 520 newspapers previously reported to have eliminated liquor advertising.

SALOONS PROMOTERS OF DISEASE

Indiana's Board of Health will fight the evils of alcohol. The legislature of 1889 passed a law making it unlawful "to maintain any conditions whatever which may transmit, generate, or promote disease," and gave the Board of Health full power to enforce that law.

The board is now considering closing the saloons in Indiana as "promoters of disease." That means progress, whether the attempt to close the saloons succeeds or not at this time. It will finally succeed, and each battle puts us further on the road to victory.—*New Republic.*

The suggestion in the above, that the saloons in Indiana are "promotors of disease," is almost a joke. Now, here is a clipping below that I hope may, through God's providence, get into the hands of the English people. Is it really possible that England thinks more of her beer than she does of the perpetuity of the English nation? Let her answer.

England stands before the civilized world in the position of having her affairs ruled by an interest so selfish that it prefers German success rather than lose the profits on beer and whisky.

The number of drinking-places in France is so great as to astonish Americans. Paris has a drink-

ing place for every 40 adults. In comparison with the population Paris has 11 drinking-places where Chicago has four and New York has three.

The situation in prohibition Russia is known to the reading world. The remarkable change which has come over that country is one of the wonders of the early days of the twentieth century. On the whole, the people themselves like the change, commend the Czar for his prohibition decree, and declare that so far as drink is concerned it was a happy day for Russia when the Germans declared war.

The one fact that the $500,000,000 formerly received by the government in one year from liquor revenue is now more than balanced by the increased sums deposited in savings banks, shows that prohibition has brought prosperity and happiness to the Russian Empire, even if it did not bring peace.—*American Issue.*

My good friends, I have been giving you a lot of discouraging facts in the above. Of course there has been something encouraging, more or less, in most of them; but here is something on the other side; and may God be praised for what poor suffering Russia has done in the way of lifting the grievous burden of drink from the shoulders of her sons and daughters.

In concluding I wish to give a brief clipping from our friend Ridgeway, in his "Business Men's Corner" in the *Sunday School Times.* Read it, and see if you do not think it is a fit winding-up for this Home paper.

Every time Dick Strode's mules had to be shod they always had to be thrown and banged around and tied up. They never learned who were their friends, and were always trying to "kick the stuffin' out of things," as Jake the blacksmith used to say. This is the way God sometimes has to "shoe" his mulish children.

Is it not true, dear friends, that God in his loving kindness has really been obliged to treat us or to treat humanity as Jake the blacksmith treated the mules? We have noted how He dealt with Pharaoh, and how stubborn and contrary the king was when God's only purpose was to let his chosen people go out of Egypt and into the promised land—a land that was literally "flowing with milk and honey." Good men and good women have no doubt protested because the people who are responsible did not make better provision to save the lives of comparatively helpless schoolchildren; and finally this awful punishment—an object lesson that the whole wide world will remember—was permitted to come first to wake us up.

Just now I am rejoicing at a movement that is being made to take care of the babies; and the great city of New York just now stands at the head. They have taken such care and pains to provide pure milk, and competent doctors and nurses to instruct the mothers, that the death-rate among the babies is less than in any other city in the land. Ever since the time of Noah, prophets and preachers have been warning us against the consequences of strong drink; but that blacksmith's journal says our law-makers have legalized the whisky business, and caused the most inhuman combination known to man—the whisky trust—and made our national Government a partner to it. Our kind and loving heavenly Father has sent us disaster after disaster, and yet our nation is *still* a partner to this hellish business, and, at least to a great extent, is saying to the voters of Ohio and to the voters of the United States, and, I fear, to the voters of a great part of the world, "Who is the Lord, that I should obey his voice?"

As a fitting closing to this matter we submit the following from Miss Ellet:

If Christian Ohio awakes, and prays for victory, and works for votes we'll win. We can't do it without God, and he will not do it without our best efforts. When it's true in Ohio, that "they that publish the tidings are a great host," old Demon Rum will run down a steep place and be drowned in the sea of his own iniquity. "This is the victory that overcometh the world, even our faith." Casting out demons cometh only by prayer and fasting—sacrifice. MINNIE J. ELLET.

Rt. 21, East Akron, O., Aug. 21.

"BAMBOOZLED BY BOOZE."

I have several times of late thanked the Lord for our splendid farm papers, and especially for the fact that they stand almost all, if not quite without exception, for righteousness, temperance, and purity. Just now I am thanking the Lord for the periodical called *Successful Farming,* published by the Successful Farming Publishing Co., Des Moines, Ia. This periodical is in its fourteenth volume, and I am thanking the Lord *again* that it has more than *700,000* subscribers. Do you want to know why? Well, it is because of an article in its issue for March, entitled "Bamboozled by Booze." This article was compiled and written by a son of our long-time friend and poet, Eugene Secor. It is the best summing-up I have ever come across of the ridiculous and shameful plea the liquorites are putting out, that the whisky business helps to pay our taxes. The figures and conclusions are such that there is no getting around it.

Here is an editorial in the same issue that sums up pretty well the article.

WEIGHED AND FOUND WANTING.

The liquor business has been weighed in the balance and found wanting. This is no new discovery on the editor's part; but after putting in one pan of the balance the annual drink bill of almost three billion dollars, one has to put in the other pan such an enormous quantity of good, wholesome, and useful things to balance the scales that every one will agree to the old, old fact that the liquor business doesn't pay.

But you will be told all about it—or as much as you can profitably comprehend at one reading—in another article which appears on page 9 of this issue. It is real interesting work—weighing 2,128,452,226 gallons of booze. Whether you are a tipler or a teetotaler you will surely read it with amazement and profit. It makes your tax problems look like thirty cents! Think of it—a hundred and ten thousand drunkards die every year. And we put up a hundred and ten thousand boys every year to fill their places. Would you rather sell two per cent of your grain—that amount goes into the making of booze—or push one hundred and ten thousand boys over the cliff into a drunkard's grave?

Read "Bamboozled by Booze" and learn how you cannot only save those boys but sell your two per cent of grain too. This is business—not wishy-washy sentiment.

Just think of it, friends—and it is really true—we as a nation are actually "pushing 110,000 boys every year over the pit into drunkards' graves," with the absurd and *ridiculous* notion in our mind that the *money* we get for so doing helps us to pay taxes or makes our taxes lighter. "What shall it profit a man if he gain the whole world and lose his own soul?"

Later.—Since the above was put in type we have received the following letter:

Dear Mr. Root:—My father told me that you were pleased with my article on "Don't be Bamboozled by Booze," which appeared in *Successful Farming*. There were so many calls for this that we reproduced it in pamphlet form, one of which I am enclosing. I shall be glad to have you use this in any way that will help you in your state fight.

SUCCESSFUL FARMING,
ALSON SECOR, Editor.

Des Moines, Iowa, August 18.

The entire article equals about three pages of GLEANINGS, and may be had of the Successful Farming Publishing Co., Des Moines, Ia., at 35 cents per 100.

WHISKY AS A MEDICINE.

May the Lord be praised that the day is so rapidly going by when whisky is considered a remedy for snake-bites, or any other kind of "bite," for that matter. Our most intelligent physicians have been for some time past coming to the conclusion that whisky, brandy, and all other intoxicants are not only of no real value as a remedy, but they say "the remedy is *worse* than the disease." We clip the following from *The New Republic:*

DR. WILEY'S FINAL VICTORY.

At the present time, the publication committee is engaged in the regular decennial revision of the Pharmacopœia, and Dr. Harvey W. Wiley is the chairman of the revision committee. On the committee are 51 representatives of the medical societies and medical colleges of the United States. The surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Marine Hospital Service, are ex-officio members of the convention, but not necessarily members of the publishing committee having the work of revision directly in charge.

When this committee came down to "spiritus frumentii," the technical name for whisky, there was a great row. The admirers of President Taft and followers of the rectified-whisky crowd were determined to revise the historic formula of the Pharmacopœia so as to conform to the decision of President Taft, and recognize almost any old thing as whisky that would bring the drunk and bring it quick.

Against this idea, Dr. Wiley and his supporters stood like a wall for the standard whisky that had been the standard for nearly a century.

The contention waxed fast and furious among the dignitaries until finally they reached the conclusion that whisky is not a much used medicine anyhow, and they might as well dump it out of the Pharmacopœia entirely. They finally agreed upon this, and both whisky and brandy will not appear in the forthcoming National Pharmacopœia.

"We don't use whisky as a medicine anyhow, and there is no more use of fixing a standard for whisky than there is fixing a standard for garbage," declared one of the wise men.

SHALL WE KEEP ON VOTING IN "THE SAME OLD WAY"?

The following clipping, source unknown, was mailed us by a friend of GLEANINGS. What do you think about it?

Stephen Lukovitch, of New York, went home drunk and cut his three-year-old son Louis seventy times, making him the worst-mutilated lad in the world. The child will recover, but will be disfigured for life. You shudder at the thought; but did it ever occur to you that you vote to make possible just such outrages as this when you vote to permit intoxicating liquors to be sold where you live? Felonious assault, murder, and practically every other crime, can be traced to the door of intoxicating liquor, and this will be true as long as the stuff is permitted to be sold.

RAISING THE BANNER OF TEMPERANCE, AND HOW THEY DID IT.

We have fought the wicked booze business to the last ditch, and have won—not by a very great margin, but by enough to serve all practicable purposes. We now pride ourselves as being among the first states to raise the banner of temperance, not merely because it is an achievement to do the right thing, but because it *is* an achievement to do the right thing when faced by huge unfair obstacles such as confronted us.

The liquor league this year realized that they were losing power, and must regain a footing by any means whatsoever were they to hold their own in the coming election; so they were forced to resort to deception, for Fairness turned her back on them. They posted unfair comparisons of every description between "dry" and "wet" states, some of which were so disgustingly simple as to make one wonder how people of intelligence could be swayed by such argument. The bartenders circulated false statements regarding the articles of the prohibition or initiative measure, thus robbing us of many votes, and, above all, the anti-prohibitionists went about destroying our literature and posters.

Notwithstanding all of this, we defeated them. A number of high-school boys volunteered to carry prohibition signs in front of the polling-places, and others distributed "dry" literature, so that an excellent showing was made. This city of Pasco, long notorious for her vulgarity, and known far and near as the home of the vices, rallied its best citizens and voted "dry" by a good majority. This was a surprise to thousands, and was brought about only by church organizations and the determined efforts put forth by a number of our prominent men, notably Prof. E. M. Dorsey, principal of the high school.

We are sympathizers in your struggle to put the Anheuser-Busch and Schlitz out of business, and to give the boys and girls of America a better opportunity.

Pasco, Wash., Nov. 11. GEO. ROGER CHUT.

OHIO'S SHAME, ETC.

The following was written last November, shortly after our Ohio election; but I have given it a place, thinking it will apply very well to the condition of things now as well as a year ago.

Shame on Ohio's election, and more shame on Tennessee, my old home, for not re-electing the governor. May God show them their mistake.

Why do you not tell some of those people who favor liquor license that it would not cost so much to pay for running the county with a less number of judges, courts, jails, poorhouses, and hundreds of other unnecessary institutions? And how may children would be happy with their mothers, glad to see the father and husband come home with his pay check *not* cashed. I have learned to believe that doing away with grafting (called business) would stop the sale of liquor or war, and make heaven on earth with all nations brothers.

Minneapolis, Minn., Nov. 24. L. E. WALLACE.

HIGH-PRESSURE GARDENING

"HIGH-PRESSURE GARDENING" WITH A MORAL.

For some years past I have been watching the movement for utilizing the vacant lots in our cities; and just now somebody has been kind enough to send me the following clipping from the San Francisco *Examiner*. May the Lord be praised for the good men and women who started this beneficent ball rolling.

CITY FARMING MAKES MONEY AND MEN.

There is a small group of men in Philadelphia who believe in the precedence of human rights over all property investiture, and for eighteen years Philadelphia, through its Vacant Lots Cultivation Association, has not only led in practical results, but has served as a source of inspiration for the founding of similar movements in France, England, and Germany.

The association prepares the idle land, which is loaned to them (subject to dispossession when the owner wants it) for cultivation by plowing, etc., then dividing it into gardens of about one-sixth of an acre. Fertilizers and sufficient rich seed to insure a successful start are furnished the gardeners, which cost the association about $5 a garden. For these they charge $1 for the first season, $2 for the second season, and so on until the family pay the full cost of that which the association furnishes them. The families spread the fertilizer, plant the seeds, cultivate the growing crops, gather the produce, and, after supplying their family needs, they sell the surplus that remains.

Last summer 603 families were allotted plots covering 81½ acres. These diminutive farms on city land, which otherwise would have produced nothing but weeds and rubbish piles, and, in addition to being disfigurements, would have been breeders of disease, have provided about 3000 men, women, and children with a most healthful exercise, an instructive form of occupation, and materially aided in reducing the high cost of living.

The cost of cultivating these lands was $7693; the food produced was valued at $32,000—$4 for every one invested—and all the profits went to the workers, who earned the help given them.

This back-to-the-land movement is the best form of progressiveness, and surely that man must be dead to all sense of social responsibility who will not loan his idle lands as instruments for self-support, better habits, practical education, and real happiness.

The largest profits of this non-pauperizing plan cannot be figured. It is not a charity; it is social justice—an opportunity for those in need to help themselves by their own work.

In addition to providing food and the wherewithal for supplying other vital needs it furnishes the only opportunity for physical and moral growth under right environment.

"The greatest value our little garden brought us," said a Frenchwoman shortly after a Philadelphian had introduced the plan in France, "has not been in the fine vegetables it yielded all summer, or the good times that I and the children have had in the open air, but in the glasses of beer and absinthe my husband hasn't taken."

"Quite right, mother," said a man standing near by. "No one can ever know the evil we men don't do while we're busy in our gardens."

The total number of vacant parcels of land in the city of New York for 1914 was 193,000. The total for Brooklyn was 50,391. These parcels, often no more than an ordinary building lot, sometimes comprise several acres. It is safe to say that there are upward of 250,000 idle acres within New York's city limits. These could produce, if the same returns were made in New York as in Philadelphia, $400 an acre, which would mean $100,000,000, and a net profit of $75,000,000. Thus, to use these vacant lots, which are now eyesores and nuisances, would not only be making something out of nothing, but give to thousands of families the truest relief—the opportunity to help themselves to procure a livelihood.

There is one point in the above, and, in fact, in everything I have ever gotten hold of on the subject, that seems to be overlooked. Any piece of ground, no matter where it is situated, would certainly be *worth* more if it were occupied by a neat pretty garden than by an accumulation of rubbish, foul weeds, etc. Now, cannot the owner of this vacant lot afford to pay something for having it transformed into "a thing of beauty," instead of being an eyesore to the residents and passersby? May God speed the movement.

STRAWBERRIES IN 90 DAYS AFTER SETTING OUT THE PLANTS.

On page 692 I mention red raspberries that grew and matured quite a crop within 80 days after planting; and just now in the *Ohio Farmer* I find something that pretty nearly matches it in the way of strawberries.

EVERBEARING STRAWBERRIES.

If we had been told ten years ago that the time would shortly come when an abundance of strawberries could be gathered from plants set less than three months before, we would certainly have thought the prophecy unsound. But our eyes have seen and our ears have heard the fulfillment of such a prophecy.

At the meeting of the Portage Co. Horticultural Society, held on July 21, Mr. W. B. Nichols exhibited a box of strawberries, very uniform in size and shape, being globular and about one inch in diameter. In answer to questions he said: "The vines that bore these berries were transplanted in April of this year. They were set in good soil which was cultivated well and continuously. The runners were cut off and the blossoms picked as soon as they appeared. To do this required constant daily attention, for a runner will grow three or four inches in a day. They are of the Superb variety of the everbearing class. The picking of the blossoms ceased three weeks ago and the result is before you. I have demonstrated," he said, "that I can grow ripe strawberries in abundance within three months after the setting of the plants, which is in marked contrast with the June-bearing varieties, which require at least 14 months to secure good results. To get the quick returns demands fertile soil, good and continuous culture, and the prevention of the natural setting of new plants. All effort must be given to the rapid and healthy growth of the individual plant so that when the fruiting time arrives its undivided attention may be given to the production of berries."

Will it pay to give such careful attention to grow the strawberry out of its so-called natural season? It is one of the most universally liked berries that are grown, especially in the fresh state. It is quite difficult to preserve it in anything like its original form and flavor for any considerable time. That there is an active demand is evidenced by the fact that at times during the late summer and fall months the supply of fresh berries has not equaled the demand at 40 cents and more per quart.—C. H. Sapp, Portage Co., Ohio.

I confess I have always had a liking for things that grow quick. When some of the catalogs advertised different seeds that would give radishes large enough to eat in 21 days from the time the seed was sown, I thought it was quite a feat; but on very rich soil, just the right temperature, plenty of water, and good cultivation, I have succeeded in getting very fair little radishes in only 18 days. Now, with the raspberry mentioned, and also with strawberries, you must have very rich soil, well drained, a location that gives free sunshine without any shade from early in the morning till late at night, and, above all, careful attention. I think I loosened the ground around my raspberries as much as a dozen times, breaking the crust, and digging it up after every rain. But to get strawberries in 90 days we must make up our mind to give them *good* care.

After the above was put in type it occurred to me that down in my Florida home strawberries are planted by the acre in September and October; and my good neighbor, year after year, is picking them for market, more or less, in even less than 90 days from the time of setting out the plants; and they usually get a good price for the berries too.

BEES, FLOWERS, AND COLLEGE GRADUATES.

On page 646, Aug. 1, our good friend Woodberry, in speaking of my visit there something over twenty years ago, says:

"I was a bachelor then, but now have a daughter who graduates from college this spring."

Later on he wrote as follows:

I inclose a picture of our daughter Anna, taken in our garden about six weeks ago. She is standing in front of some sweet peas, and in the background is a castor-bean hedge planted less than a year ago.

I wish to congratulate you and your helpmate on your long and happy sojourn here on earth together. May you both continue to enjoy your blessings to the ripest of ripe old age.

Glendale, Cal. G. B. Woodberry.

Below is the picture.



In a California garden. "Her price is far above rubies."

Now just a word to my bachelor friends, not only away off in California, but wherever they may be, anywhere in the whole wide world. These words are to remind you of the sacred and solemn responsibilities that are resting on your shoulders. Had not friend Woodberry taken my advice twenty years ago, and got a wife in that bachelor's pretty little home, this bright young lady in the picture would never have come from Heaven to earth to bless that earth, and to bless mankind at large. There will never be too many young women college graduates to help stem the tide of intemperance, crime, and wicked war that are just now devastating the whole wide world.

HEALTH NOTES

ROBBING SICK PEOPLE.

One of our workmen told me a few days ago he had something to tell me along the line of medicine. He had been taking a certain kind of medicine all winter long, or nearly so. I do not know whether the doctor advised it or whether he got it at a drugstore; but he thought he needed something, and the directions were to take it regularly for quite a spell before the good effect would be secured. Well, his testimony was like this:

"Mr. Root, I began to think the medicine was doing me harm instead of good, and I stopped right square off; and I have not only felt ever so much better ever since, but I commenced gaining in weight right along. The medicine was really doing me an injury every day I took it."

There you have it, friends. This medicine, whatever it was, was unnatural, and kind old Dame Nature was making a protest; and yet he kept on taking it. And it rejoices my heart to notice that our best physicians are gradually giving up the use of medicine. Granting the medicine *does* give relief for the time being, it fills the system with an unnatural drug, and sooner or later does more harm than good. Here is something from Dr. H. W. Wiley, which I clip from *Good Housekeeping:*

A medicine or drug that would work such cures as fresh air is capable of, we would hail with delight; but when we can put our heads out of the window and perform a miracle, it does not interest us. We would rather pay thirty-five dollars for an ozone-apparatus or oxygen-machine and crawl under the covers with it attached to our ankle, then take God's air through our lungs as a free gift.

Although he does not mention electropoise or oxydonor in the above, he describes those things exactly. Some of you may urge that a remedy that works only on the imagination, like the above, does no harm like drugs, even if it does no good. But, my dear friends, it harms the *pocketbook,* even if it does not hurt the individual. Consider again being humbugged into paying $35 for a mere toy that need not cost over 35 cents!

In our July 1st issue, 1914, I gave my opinion of chiropractic, and I came pretty near getting into a hornet's nest. Just now I find in our Medina *Gazette* the following:

The chiropractics got a rather stiff jolt from the lately adjourned legislature. By a new law they have been put strictly under the supervision of the State Medical Board, who are to examine and register persons desiring to practice any limited branch or branches of medicine or surgery, and shall establish rules and regulations governing such limited practice. The fact is, this new law is calculated to put a stop to a whole lot of quackery and quacks.

Another one of our workmen informed me a few days ago that his wife had paid a chiropractic woman doctor over $100; and he said that, so far as he could learn, she had the same trouble as when she commenced the treatment, and he very much doubted whether she was better in any way. I hardly need remind you, friends, that certain things have a "run." It seems to be a sort of craze to follow like a flock of sheep. May be it is a craze for some new medicine, some new doctor, or possibly a new kind of religion. People make up their minds beforehand that they are going to be helped, and the introducers of this new cult gather in a great lot of dollars before the people wake up to the fact that it is all imagination, and that the new thing gives no real help at all. Statistics tell us that sick and ailing people are being robbed of millions of dollars, and yet this waste of money goes on. The papers are full of it, even now.

Not long ago I told you of an advertisement for training and developing the muscles. The advertiser wanted $25 for a course of lessons. As I did not bite right away he came down to $15, and then $10; and when he finally got down to $5 I sent the money; and I also told you that I thought the physical exercise every night and morning was really of some benefit. At the same time I suggested that hoeing in the garden would do about as much good. Well, a few days ago one of my grandsons, the boy who is so much interested in astronomy, and one who is now a member of our "Scout Club," brought me a book. This book contains pictures and directions for the same thing that I paid $5 for. I might have given $25 had it not been for my past experience with such things. Well, in the little magazine, *Good Health,* from Battle Creek, Mich., they have the same thing from beginning to end; and, to go still further back, a good lady who taught school years ago tells me that at one time they had the same exercise for the pupils when they became tired and restless sitting still so long.

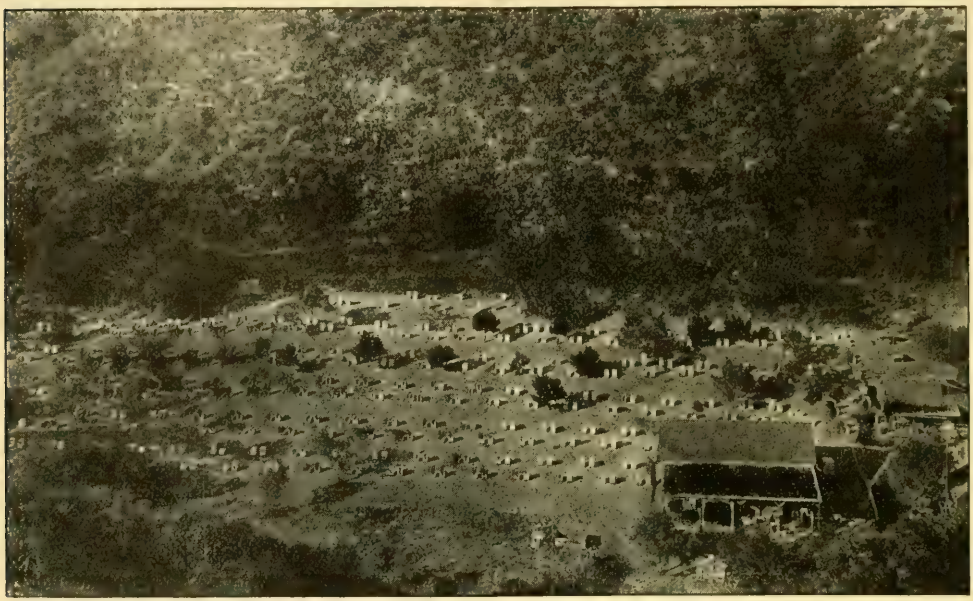
Now, then, let us who love good health, and love honesty as well, watch out and take good care that we be not swindled any more in the way I have described. Let us teach these "pickpockets" who advertise in magazines and papers that their ingenious and falsifying advertising does not "catch suckers" any longer as it did in times past.

Gleanings in Bee Culture



Vol. XLIII SEPTEMBER 15, 1915 No. 18

This is Pacific Coast Year



The eyes of the nation are turned toward the empire of the western seaboard with its two expositions and its unparalleled opportunities for travel.

Similarly, the beekeepers of the West, producers of an important part of its wealth, are turning to the two branches of The A. I. Root Company for their supplies.

Californians and producers in other Pacific Coast states who are in the market for supplies are asked to write for catalogs and prices.

Full line of Root goods are carried at both offices. Do not forget those power extractors. Order your cases and cans early.

While enjoying the splendors of the Panama-California exposition at San Diego this year, remember to inspect The A. I. Root Company's exhibit in the Varied Industries Building. Our concession stands at the right of the east entrance where you can't miss it. It's interesting and comprehensive. See demonstrations of the new friction-drive power extractors. We have another exhibit in the Palace of Food Products at the Panama-Pacific exposition, San Francisco.

The A. I. Root Company

58 Sutter St., San Francisco **942 East Second St., Los Angeles**

Gleanings in Bee Culture

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EDITORIALS

For several years we worked eight-frame supers on ten-frame hive-bodies the same as shown on page 761 of this issue. The scheme is all right; but it is not so easy to use a ten-frame super on an eight-frame hive, although it can be done.

Beginners, in locating their hives, should be careful where they place them. Sometimes a colony may be set in position on a city lot where it might cause a great deal of annoyance to the owner and to neighbors on either side. See page 762. The entrances of the hives should be so placed that the flight of the bees will not cross the walk or pathway of people going to and from the house and other buildings.

Bees and Squashes

The attention of the reader is particularly directed to the picture on page 758 of the eight tons of squashes from five-sixths of an acre. While it cannot be proven positively that the bees helped to bring about that big result, the fact that they visited the blossoms in such numbers is rather significant.

The Booster

Through an oversight the advent of the new paper entitled *The Booster* was not noticed by us when it made its modest bow to the public in June. It is edited by George W. Williams, Redkey, Ind., formerly secretary of the National Beekeepers' Association.

Mr. Williams has long believed that the consumption of honey might be very materially increased provided it were properly advertised by the beekeepers themselves. In a paper read before the National convention in Denver he outlined several things that the producers could do to boost the sale of honey. So thoroughly convinced was he that his ideas were correct he began the publication of a paper entitled *The Booster*. It is not his purpose, he explains, to cover the general field of bee culture, but to devote his attention almost entirely to providing a "better market and insure better prices." The price of the paper is 25 cents a year.

Phillips' New Book

We have just received a copy of a book entitled "Beekeeping," by Dr. E. F. Phillips. We have known for some time that this work was in course of preparation; and a glance at a few pages makes us feel that it is going to fill an important part in our bee literature, especially along scientific lines. We have not had time to review it carefully, but will give it an extended review in a later issue. The price of the book is $2.00 postpaid. It contains 450 pages.

Our Cover Picture

The very fine picture of buckwheat shown on our cover was intended for the Sept. 1st issue, as it shows the field described by Mrs. Howard, whose article appears on page 715. Owing to an unavoidable delay at the engraver's, however, the plate did not reach us until too late, and we held it, therefore, for this number.

A field of buckwheat in its prime is beautiful. In a locality where it is grown extensively, the land on every side has the appearance of being covered with snow.

The engraving on page 716 gives a good idea of the detail of the blossom and leaves.

The Ohio Field Meet, Again

On page 760 we show a photograph of the Ohio field-day meet held in Delphos August 4. For particulars see page 653 of our issue for Aug. 15th. This was one of the most successful field days that the State Beekeepers' Association has ever held; and the fact that so large a number came out on such short notice, without any preliminary notices in the bee-journals, shows that in-

terest in bees in Ohio, especially the northwest part of it, is considerably above the normal. The bees were still gathering honey from the clovers at the time, and the locality was exceptionally good for that kind of field day. It is doubtless true that other field meets will be held in the vicinity.

A Harem of Queens

A HAREM of queens, as spoken of by O. A. Bromfield, page 765, is not an uncommon occurrence with after-swarms. In fact, these little swarms usually have a plurality of queens; but it is an uncommon experience to have several virgin queens living together in harmony among the same bees. When they do this, there is possibly a sort of "understanding" that more swarms will issue, taking with them the surplusage of queens. But such excessive swarming is not a profitable condition in the beeyard, and it is here that the apiarist should step in and stop proceedings.

The Net-weight Law a Blessing and not a Curse

WILLIAM VOLLMER, in this issue, says he is in favor of the net-weight law as it stands, even in reference to comb honey. While the wrapping around hams weighs from 3 to 4 ounces to 10 lbs. of meat, the section around comb honey as he says is one ounce to every ten or more ounces. Relatively there is a big difference. We can agree with our correspondent that the net-weight law is all right as it is. All we need to do is to adjust ourselves to it. While it may impose a hardship at first, it will necessarily result in a higher quality of comb honey, better filling, and a more uniform product.

Conclusive Proof that Bees are Killed by Spraying

J. E. CRANE, in his department in this issue, furnishes some rather conclusive proof showing that bees are actually killed by the use of arsenate of led so commonly used in spraying fruit-trees. The bees were gathered up by the handful and sent to Dr. E. F. Phillips, of the Department of Agriculture, and an analysis shows an abundance of arsenate of lead in the dead bees.

There have been many reports of bees dying as the result of spraying; but only two or three that give such conclusive evidence as this. The fact that the bees are killed sometimes, at least, makes the spraying of trees while in bloom unsafe at any time. It should, therefore, be condemned not only by beekeepers, but by experiment stations and fruit-growers alike.

Clover Prospects Next Season

THE weather maps show that the rain-almost-every-day proposition in the clover belt is giving way to sunshine and hot weather. Our bees have started gathering honey from the asters, goldenrod, white, alsike, and red clovers. Mr. J. E. Crane elsewhere suggests that this peculiar season has not been duplicated before since 1865 in the days of Father Quinby.

If, perchance, the rains should continue through the fall, there will be an abundance of clover next spring. As there has not been a larger fall of rain in inches this year than normal it is not at all likely there will be a drouth next spring. If we have ordinary conditions we shall have a record-breaking clover season next year. Clover thrives when the rains are light and often.

The Spread of Blight Among Fruit-trees due to Puncturing Insects

AS an addendum to our article on page 767 in this issue, on the relation of bees to blight, we may say that later investigations go to show that bees seem to try to avoid the virus of blight. It has also been discovered that there are certain puncturing insects that pierce the bark of tender shoots and limbs of trees. These wounded limbs or shoots are very susceptible to the virus of blight. Many non-puncturing insects such as ants and flies crawling over the blighted portions of a tree will carry the infection to the punctures in the young shoots. This is the reason why so many young trees and young shoots that have never borne any blossoms are so susceptible to blight.

The evidence is accumulating more and more, showing that the bees do not carry blight to the extent that was formerly supposed. Some interesting developments will be made a little later that will go to show that they are in all probability a very small factor in the spread of blight.

A National Honey Day

ELSEWHERE in this issue reference is made to the advent of a new bee paper called *The Booster*. Among other plans to "boost" the sale of honey the editor advocates setting aside a certain day in the year as "Honey day." He suggests Nov. 25 as

an appropriate time, and urges his readers and others to join with him in making Thanksgiving day also a honey day.

Our friend has started out on a big program. While we are a little skeptical about being able to accomplish very much, because the bee papers and their subscribers are only as a drop in the bucket as compared to the great public, yet if we keep at it long enough we may accomplish something. We therefore urge our subscribers to prepare for making Nov. 25 a general honey day in their respective localities. If you are interested, write to Mr. Geo. W. Williams, Redkey, Ind., or, better, secure a copy of his paper, *The Booster*.

Bees and Fruit

THE experiment of placing ripe fruit in a hive to see whether the bees can or will puncture the skins, and thus suck out the juices, as shown and described on page 766 of this issue by Mr. J. P. Lucas, has been tried over and over again, and always with the same result. They will not work through the skin of sound fruit—never have done it and never will do it. But when fruit is overripe, and the skin cracked, and when other insects or birds, or when the spots of skin-rot injure the surface of the fruit, the bees will help themselves most royally.

Just recently we had a pear-tree where the pears ripened within a few days. The skins took on a rosy hue, and this rendered them attractive to the birds. They would make a small hole where the softest part of the pear was exposed; and after a hole was made the bees would keep on sucking out the juices until the skin was a mere shell in some cases.

Fruit with broken skins or holes, made by insects or birds, independent of bees, is, of course, ruined. It would be unfit for market, even if there were no bees. The work the bees do, therefore, does not result in direct damage to the fruit-grower. If, however, the bees "started" the trouble, and then birds and insects helped themselves, the case against the bees would be very different.

Complaints of Queen Advertisers Again

REFERRING to our editorial on page 608, August 1, Mr. Kennith Hawkins offers some further suggestions that are worthy of consideration, and we believe that reliable queen-breeders will be willing to subscribe to them. Here they are:

My dear Mr. Root:—I believe every queen-breeder's guarantee should be *something definite;* that he should agree to arbitrate all complaints with the bee-journal as arbitrator if the customer was dissatisfied with the proposition made, and *should not be allowed space at any price unless he would do this.* You may be sure those of us who are trying to do right appreciate the stand of your journal in such matters.

Plainfield, Ill. KENNITH HAWKINS.

We wish to offer the further suggestion that every queen-breeder agree to breed only from select stock. We have been informed that one prominent queen-breeder has been in the habit of using queen-cells from any source—natural cells, good, bad, and indifferent. If a customer could know that the breeder is furnishing him such stock he would buy of the other fellow, without question.

It might not be out of place to suggest that the queen-breeders get together and agree on a set of conditions, not only to raise first-class stock, but to stand by a guarantee and arbitration. We suggest that the guarantee cover reasonably prompt delivery or a statement explaining the delay, an offer to return money in case the customer cannot wait to replace promptly, a sworn statement that there is no bee disease in the yard, and that all queens are reared from the best stock.

A Trick of the Trade in Introducing Virgin Queens

ONE of our subscribers who has been buying some virgin queens writes as follows:

If you will pardon the suggestion, I beg to submit that we beginners should be cautioned more urgently in the matter of supplying a nucleus with a frame of eggs and unsealed brood. I lost two of my last six virgins on this account, I believe. Each nucleus had three full frames of sealed brood and some stores. I made the divisions in the dusk of the evening, because of robbers (these pests give me the nightmare); and while the A B C states very plainly the need of eggs and unsealed brood, I seem to have overlooked it on these two nuclei.

Pittsburgh, Pa., Aug. 3. GEO. W. GUTHRIE.

While our old A B C book does state the need of eggs and unsealed brood, we now believe that it is not an essential factor after all. As a general thing, unsealed brood and eggs help to put a colony in normal condition. Bees that are otherwise discouraged will seem to take on new life.

We have just been talking with our Mr. Mel Pritchard, who has raised some 20,000 queens. He is a very close observer, and he says he does not attach very much importance to the need of eggs and unsealed brood in a nucleus that is about to be supplied with a virgin queen. He has introduced thousands and thousands of them under both conditions, and he does not see much difference if any. But he does say

that the presence of *young hatching bees* does make all the difference in the world. He therefore seeks to avoid having them in a nucleus into which he is letting loose a virgin.

We asked him why they should be the cause of trouble. He did not know how to account for it unless young queens do not know the difference between a baby worker and a baby queen. He has repeatedly seen these young virgins, as soon as let loose, pounce on and sting bees just hatched, one after another.

The trouble apparently arises, not from the young bees, but, rather, from the queen. She *starts* the trouble, and it is evident that all the bees then take a hand in the fracas, with the result that she loses out as a matter of course.

Why Some Should Advertise at County Fairs

Now is the time for beekeepers to advertise their honey business at local fairs. Live-bee demonstrations and exhibits will draw a big crowd, sell a large amount of honey, and pave the way for future sales. It is the kind of advertising that pays well; and the honey-producer who does not take advantage of it is losing money.

We should hardly expect, however, that an old veteran like Dr. Miller, at the age of 84 years, would give live-bee demonstrations at his county fair. The fact is, he is able to sell his honey, usually, before it is off the hive, at a price that is highly satisfactory, for he sometimes has more than one buyer in prospect—not because he goes after that buyer, but because the buyers come to him. The quality of his honey, his careful grading, and his prominence as a bee-writer, create a good demand for his product. But not all have this reputation; and it will, therefore, be necessary for them to create a demand by letting their local consumers know that they have honey for sale.

A Rose by any other Name

Whatever may be the facts in this incident, it points to a fundamental principle in the scientific method, the necessity for exactness in names. A householder cut down four handsome basswood-trees which had shaded his lawn for a generation. He had heard of the linden-tree, its value for shade, for nectar, and for timber, and in his desire to secure some of these he destroyed the basswoods. A nursery set out the lindens according to his order. He was naturally somewhat surprised when, four or five years later, he discovered that basswood and linden are one.

How often much confusion arises in the discussion of honey-plants, all of which could be avoided by the use of the Latin names, as a contributor has suggested in a former issue. The willow-herb (*Epilobium angustifolium*) is sometimes known as the fireweed. But the evening primrose (*Oenothera biennis*) is also called the willow-herb. Similarly the wild lettuce (*Lactuca canadensis*) sometimes called fireweed. Plenty of room for confusion here.

There are two dog-fennels, one of which is an aster (*Aster ericoides*), and the other *Anthemis cotula*. A variety of sneezeweed (*Helenium autumnale*) and the common field daisy (*Chrysanthemum leucanthemum*) are each sometimes called the oxeye.

While a rose by any other name would smell as sweet, it is likely to cause confusion by any other name than the Latin one. These names are in the language common to science. Latin is to botany and other natural sciences what Italian is to music.

We endeavor to add the Latin names of plants in articles in Gleanings where there is a possibility of confusion, but when these are not supplied by contributors we are often at a loss for them, simply because the common name is strange to us, or because there may be several closely allied plants, and we cannot tell which is meant. When a writer attempts to deal with a scientific subject such as a honey-plant, he should use the language of science, the Latin terminology.

The Question of Fall Uniting; When Should it be Done?

It is the usual practice to unite just before putting bees into their final winter quarters; that is, a little before freezing weather sets in; but it has been observed over and over again that a late-united colony is never quite as normal as a regular colony that has sufficient strength without the infusion of other bees. Several united nuclei, if put together late in the fall, look like a good colony at the time of putting together; but very often these combinations die out before spring. For some reason they do not seem to be able to get together as one working unit, like a regular colony.

Every fall we have been in the habit of uniting our queen-rearing nuclei, and this uniting has generally taken place pretty late, because we desired to keep the queens for late orders, even though we might lose the bees that were of much less value than the queen.

Years ago Mr. Doolittle used to recommend uniting in the brood form in late summer. Such a colony will build up normally, and be the equal of any other in the yard, and, what is of considerable importance, there will be no returning of bees to the old stand.

Uniting can be profitably undertaken provided the bees are put together during warm weather. If they raise brood after this, such a united colony will be, to all intents and purposes, the equal of any other.

But why has the general practice of uniting been deferred so late? Queen-breeders do it to save their queens. Others do it because, after cool or cold weather sets in, bees will stay better where they are put, especially if the following week or ten days be cool enough so the bees cannot fly.

We are now working on the scheme of uniting the weak colonies from two different yards. During the early part of September, in our locality, it is not practicable for us to unite the bees in one yard, on account of the bees returning; but when several half-strength colonies of one yard are united to an equal number at another yard the union is accomplished without any bees deserting and returning to their old stands. This early uniting results in a perfectly normal colony later on. But the objection, of course, to uniting bees from two different yards is the expense of hauling; but if one has to go to an outyard anyway, he can just as well take along a load of bees, and put them with other weak stocks in a yard where he expects to work.

What is a Trademark?

SOME centuries ago a medieval paper-maker conceived the idea of distinguishing his product from that of others by pressing a die into the paper and making the fabric thinner and therefore translucent in the form of the design. Manufacturers of other wares adopted the idea.

The quality of merchandise is due as much to the invention of the trademark as the efficiency of machinery is due to the invention of interchangeable parts, a development hardly more than a century old. The trademark indicates the pride of the manufacturer in his product. The confidence of the buyer must follow. Great systems of business, vast selling campaigns, the whole mass of modern advertising, would not be possible without the trademark.

It is not necessary to argue the value of the trademark for honey-producers. It is a sales necessity for large success in everything from cruisers to collar-button. You may develop a trademark that may be your greatest asset. The name Coca-Cola is worth more than five million dollars.

There are certain things one must keep in mind in selecting a trademark or trade-name. His own name cannot be protected by use of any one else of the same name in marketing the same product. There are two firms making Baker's chocolate, two manufacturing Faber's pencils, two manufacturing Waterman fountain pens.

For the same reason it is impossible to prevent any one from using the name of a town or city or any other geographical name as the designation of a product. Any other honey-producer in your locality could build his trade on what you have worked up, simply by adopting the name of the locality if you were using it already. The same is true of words which are simply descriptive of the product.

Of course a trademark is valueless if the product is mediocre. If inferior the mark had better be dropped altogether.

In the case of marks such as the government has declared protectable, it is not necessary to register them to prove priority of use, although registry, of course, makes the mark more secure. If you have adopted for your product a sunbonnet girl or an apple-blossom or a coined word which no one else has used for a product of the same class, you may rest confident that no one can use the sign to attract trade that should be yours.

Another Visit from a Norwegian Bee-keeper who Uses American Methods

ON page 668 of our issue for Oct. 1, 1913, we gave an account of a brief visit that we had had from Mr. Ewald Omdahl, of Drammen, Norway, a prominent manufacturer of leather goods, who has quite an extensive bee business as a side line. Mr. Omdahl has recently made another trip to this country; and while on his way from San Francisco to visit the exposition, on Sept. 2, he called again at "The Home of the Honeybee."

Mr. Omdahl says that there has been practically no honey produced in Norway this season, on account of the rain and cold weather. The conditions have been so bad, in fact, that there is practically no honey on the market.

There is much clover around Drammen —white, alsike, and red clover, the clover being the principal source of light honey. In addition to many other plants

such as are common in northern United States they have considerable heather. In commenting on the thick heather honey Mr. Omdahl says that they now have no difficulty in extracting it. A roller-like tool of German manufacture, containing a large number of sharp points, or needles, is run rapidly over the combs, the points reaching nearly to the midrib. As we understand it, this is done after uncapping. The thick waxy honey, which is almost impossible to extract under ordinary circumstances, may then be extracted with ease. Possibly some air is thereby introduced into the honey, which makes it leave the cells more easily. According to our Norwegian friend, even honey which has started to granulate may be quickly thrown out when this tool is used.

As reported in the former editorial, Mr. Omdahl uses both Carniolan and Italian queens. He has been buying rather more Italians of late, securing them direct from an extensive breeder in northern Italy. This is a very easy way to get imported Italian stock, as the queens reach him in just three days' time.

He told of a peculiar instance which occurred recently. He received a shipment of thirty queens, twenty-five of which were leather-colored; and the other five, goldens. All were fine-looking queens, but for some reason or other the eggs of the five golden queens would not hatch—all of the other queens being normal in every way. Occasionally we run across a queen whose eggs do not hatch, but have merely supposed such a queen to be structurally deficient in some way. We could not offer any reason why the eggs of all five queens should have failed to hatch. We suggested that the fact that the queens were goldens could hardly have anything to do with the matter; but Mr. Omdahl says that the general opinion of the beekeepers in his vicinity who use both the golden and leather-colored Italians imported direct from Italy is that the leather-colored are far superior.

Since the war broke out, European mail, of course, has been extremely slow. Under normal conditions it takes only three or four days for mail between Norway and Italy. Under present conditions all mail is "censored," with a resulting delay of a week or more. Importations of queens, therefore, are out of the question.

Mr. Omdahl believes more and more in providing an abundance of sugar syrup in the fall. He says there is no danger in giving too much, for extra combs of stores in the spring always come handy for weak colonies, and, of course, they are much to be preferred over spring feeding. The fall is certainly the time to feed in the spring.

Successful Shipments of Bees in Pound Packages from Alabama to Canada

Mr. W. D. Achord, of Fitzpatrick, Ala., called on us recently. Mr. Achord is a prominent queen-breeder and extensive beekeeper, owning from 500 to 600 colonies which he operates for bees, queens, and honey. Early this spring he sent something like 1000 lbs. of bees by express in various shipments to beekeepers in Canada, with a loss not exceeding two per cent. He began to deliver queens by April 1. Shortly after this his bees were swarming out, and, of course, his hives were boiling over with bees. There is not much honey in sight, and he can, therefore, fill orders for pound packages very easily. In fact, he finds it an advantage to take off the surplusage of bees; and after having done this they are in splendid condition by June 1 to catch the heaviest flow of honey for the year. In this way Mr. Achord is enabled to do quite an extensive business in bees, queens, and honey. He is a good business man, and his stock is first-class. The sale of bees in pound packages is just so much velvet.

One of his customers having experienced a severe winter loss said that his pounds of bees did so well that he did not know but that it would be better for him to brimstone his bees in the fall, save the stores, and buy bees in pound packages from Mr. Achord. He says that a pound of fresh bees from the South is more than equivalent to any colony that has been wintered over whose bees are more or less old or worn out by the rigors of winter. Some of these pound packages have paid for themselves several times over in honey.

The Tri-state Field Meet at Hamilton, Illinois, Sept. 7 and 8

We have just returned from attending a successful field-day meet, at Hamilton, Ill., and have only just room enough to squeeze in a brief notice. The representatives of some six or seven states were present, including such men as Dr. L. H. Pammel, botanist, of the Iowa State Agricultural College, Ames, Ia.; Frank C. Pellett, bee-inspector for Iowa; N. E. France, inspector for Wisconsin; A. L. Kildow, inspector for Illinois; Frank Coverdale, of sweet-clover fame, Iowa; Dr. E. F. Phillips, of the Department of Agriculture, Washington; and, of course, the Dadants.

A fuller report of this field meet will be given in our next issue.

Dr. C. C. Miller STRAY STRAWS Marengo, Ill.



P. C. CHADWICK gives a plan for transferring, page 616, that sounds excellent, and I'm not sure I ever heard of it before. But he doesn't say what he does with the old combs that in three weeks would be filled with honey.

A. I. Root, I'm interested in your work with hand cultivator, p. 599. I'm having lots of fun cultivating my roses and gladioli with a wheel-hoe. And to think I've lived till now without ever knowing how much easier it was than a common hoe!

FOOLED again! When the cold and wet kept bees indoors I thought when bright days came again they might do a rushing business, since clover bloom was still abundant. Didn't work that way; and although clover is still booming, 1915 may as well be set down as a rather poor year. [The same in our locality. The clovers were out in bloom the 15th of August, but they do not yield honey now, the 23d.—ED.]

I WANT to say amen to J. L. Byer's note of warning to beginners, p. 704, about the danger of letting bees run short on stores early in the season. If it goes to the point of having the bees destroy brood, the ruinous results are far beyond what one would estimate. I had one case this year, and the colony was many weeks recovering. In fact, it was practically ruined as a honey-storer. It would have paid well to feed at a dollar a pound.

P. C. CHADWICK thinks it a bad thing to have in spring two to four brood and pollen each side, p. 525. I've often wondered about that. But I haven't dared to interfere with it, for that's the regular thing; and when the bees make a rule to do a certain way, isn't there some good reason for it? A common thing is to find pollen on the inside of a comb and young brood outside; and then in an incredibly short time the pollen disappears. May be that's the best—possibly like having dinner all on the table instead of upstairs or down cellar.

ALLEN LATHAM writes: "Foul brood has been very bad here this year, and the caging of the queen has failed in many instances. I think that will work only when new honey is coming in. All colonies are getting cured, now that the honey-flow is in progress." I suppose he means European foul brood. A flow is very helpful in treatment—even a cure in some mild cases; but I think I've had caging a success in a dearth. [European foul brood is undoubtedly meant; for Mr. Latham is not a beekeeper who would claim that caging would cure American foul brood. This only illustrates the importance of specifying which type of foul brood is meant. Will our correspondents please be specific?]

ONE OF the hardest things I've had to learn (I'm still learning it) is that everything about beekeeping all over the world isn't exactly the same as right here at Marengo, Ill. In a British Columbia bulletin written by our wide-awake friend F. Dundas Todd, he says British Columbia differs from almost the whole world in having a spring-building-up season *four months long.* Clover begins to bloom in May, but apparently nectar is not secreted *until June is past.* So with plans that fitted in Ontario, beekeeping was a flat failure; with different plans, fine yields are obtained. [If you traveled all over the country as much as we do, from one end to the other, from the extreme east to the extreme west, and from the extreme south to the extreme north, you would have it pounded into you pretty thoroughly that there is a very marked difference in localities, and that locality explains differences when one knows the exact conditions. Many of those who criticise the late E. W. Alexander's methods would be less inclined to do so if they knew the conditions surrounding his locality.—ED.]

J. L. BYER, you have my hearty thanks for entering a protest, p. 617, against the thing that so constantly vexes my soul, the talking about foul brood without saying whether it's American or European. I have my opinion of any editor who will allow anything of that kind to get into print. [If you were an editor you would, perhaps, realize better than you now do the futility of trying to make every correspondent make a direct distinction between the two kinds of diseases. We admit that, as the modes of treatment are different, it is very important to know what the writer is talking about. We should appreciate it if all our old correspondents, at least, would be careful to prefix the proper adjective, "American" or "European," when they speak of foul brood.—ED.]

GOT all kinds of foul brood now. After hovering about within 12 miles the past three or four years, American foul brood has finally concluded to pay me a visit.

Don't know what treatment I may use later; but as a starter I've adopted the carbon-disulfide-furnace treatment — carbon-disulfide for the bees, and then the furnace for bees and combs. [While we are awfully sorry for you, yet we cannot repress a feeling of satisfaction that what will be your loss will be a gain, perhaps, to the fraternity at large. We believe that beekeepers have profited greatly by your experience with European foul brood. While your plan for European will not work in all cases and in all localities and with all strains of bees, it will work in a good many cases. After all, is not this the basis of the Alexander treatment?—Ed.]

"Familiarity breeds contempt." I suppose it's according to that old adage that R. F. Holtermann, p. 707, thinks American, and I think European foul brood the lesser of the two evils. With his vigorous treatment I don't believe he'll have much trouble with European foul brood. At present I don't believe I dread European foul brood any more than I dreaded wax-moth with black bees. R. F. rather belittles the damage from destroying combs; but I've found that shaking means the loss of half to the whole of the surplus for that season, while with European foul brood the caging of the queen for ten days makes little impression on the harvest. And taken in time that caging is all that's ever needed. But we'll know more about it a year from now, Bro. Holtermann. [We should like to get reports from our subscribers who have tried this ten-day caging plan of Dr. Miller's for the treatment of European foul brood. While you are about it, do not get the plan mixed up with the American disease, for it will not work.—Ed.]

Mr. Editor, you ask, p. 701, my opinion of the Fowls plan of swarm control. Please understand that my quarrel with Miss Iona, April 15, p. 261, was not at all about the value of the Fowls plan, but because she said "putting the queenless colony right on top with nothing but the honey-board between . . . . . the chances are that the swarming tendency would very rapidly develop into a mania," for I had done that very thing many a time, at all stages of the swarming fever, up to sealed cells, and even after the colony had swarmed, and it always cured the fever instead of developing a mania. What's that? "Want me to stick to the point and say what I think of the Fowls plan?" Well, it's excellent. Splendid! I'm not sure about that philosophy about the young bees, but it's quite possible that there is an advantage in having those intervening empty supers; for without them I've known the queen to sulk several days before laying, and it may be that with the Fowls plan she goes promptly to work. If no increase is desired, all that's needed is to kill cells again in 8 days. Yes, it's a good plan, and I'd give $49.98 (marked down from $50.00) if I could use it. But it won't do for comb honey. [The Fowls are good beekeepers; and while we will admit that they do not know as much about the production of comb honey, the difference in their experiences is probably accounted for by locality as well as by the kind of honey produced. The attention of Mr. or Miss Fowls is hereby directed to what Dr. Miller says.—Ed.]

No matter how dry a cellar or refrigerator may be, says ye editor, p. 698, the tendency to granulate is hastened materially, meaning, of course, hastened by the cold. Very true; but isn't there such a thing as honey without a tendency to granulate? At any rate, I want to register my belief that comb honey properly ripened will not granulate with cold. That belief is based on seeing honey that had been roasted in an attic through the summer remain uninjured by freezing the next winter. [Practically all honey, both comb and extracted, no matter what treatment it may have had previously, will granulate if given time enough and subjected to alternate cold and warmth. Comb honey that has stood in a warm or hot attic for six months, if well ripened at the time it was taken off, probably would not granulate for a year if exposed to continuous cold; but it will be almost sure to do so the second year, especially if the temperature rises and falls.

A very thick and well-ripened comb honey would not be injured by freezing, because the water content is very small comparatively.

But look 'e here, doctor; you do not cover the point directly as to whether comb honey or extracted honey should be kept in a cold or hot place *continuously*. We assume, of course, that you are in line with the orthodox teaching on this point, although you did not say so in our last issue, and now you are silent again. You would not recommend putting a well-ripened thick or attic-stored comb honey into a refrigerator or ice-box and *keep it there* as a matter of good practice. Would you not rather keep honey in a warm dry place, and then store it in a refrigerator, or before an open window in winter time, for a few hours before eating? This last point has never before been emphasized so far as we can remember, and perhaps our old orthodox teaching should be modified slightly.—Ed.]

MR. EDITOR, you ask, p. 657, whether I think it advisable to have "one large brood-chamber or a multiple of two or more of medium size, and tier up in order to get the necessary capacity." Too many angles to that question to handle it in a single paragraph. If Langstroth frames are used in both cases, 14 or more being used, then I'd rather tier up for comb honey, the other way giving too large surface for sections; but for extracted honey—I don't know. A question involved is: "Which would suit the queen best?" I formerly thought she would dislike to cross the wood of the top-bar and bottom-bar, and especially the space of air between; but having tried it many times I find she keeps the work going in two stories just as well as in one.

ON page 655 I say that the chief part of cleaning sections is done with No. 2 sandpaper. I've just watched Miss Wilson at work, and will now describe the work more minutely. Tops and bottoms are cleaned as I said, but No. 2½ sandpaper does as well as No. 2. For the rest of the work No. 3 is used, making better work. The sandpaper lies flat and on this she lays the section flat, and with a few motions cleans the edges, then reverses the section and cleans the other edges. Then she lays the section on one of its sides, gives it a few rubs, turns it over on its top, rubs; turns it over on the other side, rubs, and it's done. I said I didn't see much use in rubbing the top, which was already clean. She replied, "Sometimes there's a little to clean on the corners, but the chief reason for having the top down is because it's easier to roll the section over in that way than it is to pick it up and lay it down on the other side." If there's much glue on the edges, and it's pretty warm, then the knife precedes the sandpaper. By the way, since testing that knife you sent, in actual work, she says it's fine. [Apparently there are times when the knife is better than sandpaper. It would seem to us that both methods should be employed, according to the condition of the atmosphere, propolis, or the sections themselves.—ED.]

YE EDITOR asks, p. 657, what I mean by "breeding from the best." My first thought was, "What a fool question!" But after studying over it a bit, I conclude the foolishness is elsewhere, and am strongly inclined to answer, "I don't know." The best for one is not the best for another. If I kept a few bees in town just for the fun of it I'd breed for gentleness, even if I didn't get ten pounds of honey per colony. If I wanted to sell bees or queens, color would be an important matter. But if I bred bees for the honey I could get, then the bees that stored the most pounds would be the ones to breed from. Not altogether that, either. For years I paid no attention to anything else, and I had bees that would get the honey; but I also had bees that disputed my right to be on the same 37 acres with them. So I'd rather have a little less honey with less danger from stings. But I'm not sure I'd take anything else into account. Wintering, for instance, may be ignored. The colony that gets the most honey has wintered well enough. So the "best" would be those giving most honey, provided not *too* cross. For I'm afraid Vernon Burt is right, that if you want big yields you must take some temper with them. [Thanks, you have given us just the information we desire.—ED.]

YOU say, Mr. Editor, p. 613, "If you were in an office where four or five dozen queens were lying on a desk . . . . . you would hear a good deal of piping. We have heard them answer back and forth time and time again." So have I heard them piping many a time outside a hive, and, of course, outside a cell. But in answering back and forth were some of the queens *quahking?* Were they not all piping? I never heard a queen quahk, as I said, outside a cell; nor did I ever hear one pipe inside a cell. Did you? [It all depends on what we mean by piping and quahking. In your previous Straw you mentioned the fact that there are some who think they are one and the same thing. We are coming more and more to that opinion ourself. If we were to shut you up in a cracker-barrel and have you call loudly you would *quahk.* Out of the barrel you would *pipe.* If you were to be shut up in that barrel for some time your holler might be prolonged in order to attract attention because the sound would be muffled. Of course, we realize the fact that barrels and queen-cells are not quite analogous because they are made of different materials. One might make a better sounding-board than the other.

After all, doctor, have you any proof that there is any difference in the *way* the sounds are made beyond the mere matter of environment? Now, then, to answer your question, if they are made in the same way, we *have* heard queens pipe and quahk, both inside and outside of a cell and inside and outside of a hive. Inside of the cells the sound might properly be called quahking because it is muffled; and outside, piping; but we strongly suspect the sounds are made with precisely the same organs and in precisely the same way. If so, why draw a useless distinction?—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



We tried this year a small strip of foundation on the bottom of sections as recommended by Dr. Miller, but do not find such sections any better attached at the bottom than those in which we used a full sheet coming down to ¼ inch of the bottom of the section.

* * *

Passing a field of alfalfa in full bloom yesterday, Aug. 16, on my way to an outyard, I had the curiosity to see if bees work on the flowers, and found them in goodly numbers. I presume they have not learned that alfalfa doesn't yield honey east of the Mississippi River.

* * *

That photogravure showing how bees are kept in the Blue Ridge Mountains, page 533, July 1, by J. J. Wilder, is very enlightening. How little some of us know the way many people live in other sections of the country! and we may well be grateful for the enterprise of our journalists for the knowledge we do have.

* * *

Mr. Conover's method of fastening foundation into sections would seem to make a good deal of work without corresponding advantages as given on page 585, July 15. Now, after many years' experience I believe that where honey is coming in very fast a small amount of foundation can be used with satisfaction; but where it comes slowly a full sheet of foundation is most economical.

* * *

Quinby tells us in his book that clover will sometimes continue to bloom all summer and yield honey. Such a season was 1865, as I remember. I have been looking for another for the past fifty years, and it has come at last; and now, Aug. 12, clover is yielding honey as fast as on July 1. Alsike is still as fresh as it usually is the last of June, and bees are working, when the weather will permit, as fast as at any time through the season.

* * *

In a paragraph on page 570, July 15, I referred to the certainty of bees being poisoned by the spraying of fruit-trees. Thinking it might throw some light on the question, when I found how badly they had been poisoned I gathered up a handful of dead bees in front of one hive, perhaps half a pint, and sent them to Dr. Phillips to be analyzed at the Department of Agriculture. His report shows an abundance of arsenic found in the dead bees. Pretty conclusive proof! I have since learned who did the spraying, and that they used arsenate of lead. It remains to call the parties to account for it, and settle for damages, as the spraying was illegal.

* * *

That article on pages 574 and 575, July 15, by Chalon Fowls, is of unusual interest. Why shaken swarms should swarm out has given me a good deal of thought and study. I have not laid it so much to too many young bees as to other causes. Natural swarms often take with them almost every bee in the hive that can fly. My own failures have come largely from shaking colonies with old queens (two years or older), or by delaying the shaking until the bees were nearly or quite ready to swarm. By shaking only colonies having vigorous queens, and those as soon as we find larvæ in queen-cells, we have little trouble from their absconding. Old or inferior queens should be destroyed when they prepare to swarm, if you can find them; and after destroying queen-cells give a choice virgin queen or a queen-cell. These swarms made by shaking have proved my best workers. Shaking on to frames of foundation is often a cause of absconding, and natural swarms are no exception.

* * *

"It is a brave man that dares to stand before the king," or stand up and disagree with our friend R. F. Holtermann when he tells "how not to do and how to do." I shall not quarrel with him for thinking that the way he describes on page 490, June 15, is best for him to handle combs, and perhaps many others; but there may be some beekeepers, and myself among the number, who would find such a way decidedly irksome. I find I can work when the brood-chamber is high enough with the least weariness by standing; but if the brood-box is low I can work best by kneeling on the ground or a cushion of shavings. It is my opinion that beekeepers as well as other people are built differently. One may be tall and another short. One may have a large development of muscles in the arms; another in the shoulders, and another in the lower part of body or legs. Now let every one find out for himself how he can work easiest and most rapidly, and stick to it until it becomes second or third nature to him.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



A NOVEL AND PROFITABLE WAY TO SELL HONEY.

While at the recent meeting of the State Beekeepers' Association at College Station we learned of a unique way of disposing of large quantities of honey profitably. The plan was used successfully by Mr. J. H. Meeks, of Nederland, Texas. He had a large quantity of honey to sell. It was somewhat difficult for him to sell it direct to the merchants for them to sell again to their customers. They believed there would be few if any calls for honey, and consequently they were afraid to stock up with a supply.

Mr. Meeks' plan was like this: He obtained permission of the merchants to leave at each store in town a supply of honey without obligating the merchants to pay for any of it unless it was sold by them. Then he went to the newspapers and placed in the classified "want ad." columns such advertisements as, "Eat Meeks' Honey. To be had at all groceries." "Meeks' Fresh Honey. Call at your grocer's." Other similar, short, catchy advertisements were used. These were placed in nearly all the columns, scattered under the heads of "Help Wanted," "Live Stock," "Typewriter Supplies," "Poultry and Pet Stock," and almost all the other captions. The result was good, for a demand was created for this honey, and the merchants sold honey when they had believed they could not get rid of it. Mr. Meeks worked this scheme in a series of towns that could be reached by the same newspapers.

* * *

THE FOUL-BROOD WORK IN TEXAS.

Thirteen thousand dollars was appropriated by the last legislature of Texas for foul-brood eradication—a larger sum, we believe, than has ever been appropriated for this purpose at any one time. Three thousand dollars of this amount was an emergency appropriation for the rest of this fiscal year ending Sept. 1, as there had not been made any appropriation for the last two fiscal years. There was no money with which to look after the work, and consequently it became necessary to get some money with which to resume the abandoned inspection work. Five thousand dollars each year for the next two fiscal years was allowed in the regular appropriations for the State Experiment Station. This will give us sufficient money to do some effective work. It is to be hoped that it will be spent advantageously, and efficiently applied, and that the work will result in eradicating the disease to such an exent, at least during the next two years, that there need be less fear from its ravages than now exists.

We are only hoping that those in charge of the work will give it their proper attention. We know it is quite a difficult task to take care of as large an undertaking properly, involved with so large an appropriation. With the right man at the helm it will be less difficult, and it is our fondest hope that the Texas Experiment Station will obtain a man who will be well qualified to handle ably the funds for this purpose.

It is my opinion that the beekeepers should themselves take a bigger interest in this work and in the spending of this money. It was appropriated for them and their cause, and they ought to see to it that they receive "their money's worth" out of it. As a member of the legislature myself, as well as one of the beekeepers, I feel that I understand the situation somewhat better than the average person. I should like to urge a stronger co-operation among the beekeepers of this state in foul-brood inspection and eradication work. The beekeepers can be of very material aid in more efficient work being done with the money appropriated for their cause. With the beekeepers working hand in hand with the State Entomologist at College Station, greater good may be obtained. A united effort of all concerned will mean more than a haphazard, go-lucky manner of procedure. Let us hope that every beekeeper, whether his bees are diseased or not, will take an earnest interest in this work. Get in correspondence with the State Entomologist, at the above address, who has charge of the funds and the foul-brood work of Texas. We have the chance of a lifetime to do some good work with the generous appropriation now at hand, and it is my keenest desire to see the funds well spent. I should regret to have to appear in the legislative sessions hereafter and have my colleagues, who so kindly aided us in getting the money, call my attention to the fact that the money was not well used. I am not anticipating this, and feel that the beekeepers and the State Entomologist will work for a united effort toward stamping out the dread disease that is a menace to our industry.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



SPREADING BROOD; PIPING QUEENS.

"Did you read what Editor Root said on page 345, May 1, about the folly of spreading brood? Again, did you read Dr. Miller, p. 435, June 1, on the same subject? I am surprised at what both write. I have spread brood with good results for more than twenty years, in accord with what you told us at a National bee convention which I attended nearly a quarter of a century ago. Do you still practice spreading the brood?"

Since I began using the plan of "millions of honey at our house," as given in the "Management of Out-apiaries," I have not been as enthusiastic about spreading the brood as I was twenty-five years ago—not that a gain cannot be made by a judicious spreading of the brood, but the work and manipulation, as well as a careful diagnosis of each colony, overbalances the extra gain that can be made above the abundance-of-honey plan as hinted at by Dr. Miller.

But both Editor Root and Dr. Miller put two words in what they wrote that would make the spreading of brood a failure nine seasons out of ten; and to me it is no wonder that Dr. Miller says, "In my locality, and with my bees, brood can be spread in spring always and only at a loss." The two words are "empty comb." Empty combs put between combs of brood are no incentive toward a greater laying of the queen unless there is an abundant flow of nectar to be had from the fields, and such a flow is not the rule at the most advantageous time for spreading, which time is always from 35 to 40 days before the main honey crop will be at its best. Putting an empty comb between combs of brood at a time when the bees were living "from hand to mouth" would be like throwing a wet blanket over a lot of motherless chickens on a cold morning, resulting, as Editor Root tells us, "in almost irreparable damage to the colony should a cold spell come on." Any comb that is to be put between combs of brood should be full of honey, and that honey preferably sealed, though in the absence of honey a comb filled with good sugar sirup of the consistency of honey will work nearly as well. If the sealed honey is partially candied it will do no harm, especially if a cool spell of several days should come on. The cappings to the cells should mostly be broken by passing a knife flatwise over them before the comb is inserted between the frames of brood. By thus spreading you will cause a great activity to come to this colony, the queen to be abundantly fed by the bees, and the necessary heat kept up during quite a spell of cool weather, while the honey not consumed in brood-rearing will be stored all about the brood, the same as would be the case with a day's flow of nectar from the fields during a time of scarcity, making quite a gain in bees at a time when such bees would work to the best advantage in the main honey harvest.

"I see that you are behind the times as to the piping of queens except when they are on the combs in the brood-chamber, p. 312, April 15. Have you ever heard queens piping in cages with bees where they were to be sent in the mails or otherwise?"

Certainly, a great many times. As the questioner was a person whom I had instructed to listen at the side of the hive for the piping of queens so that he could locate the time of day when an after-swarm could be expected (this piping matter being entirely new to him), I answered from his standpoint, not for older heads like E. R. Root, Dr. Miller, J. L. Byer, etc. Where there are only scores of these old veterans (in the commercial handling of queens) who are readers of GLEANINGS, there are hundreds who know little regarding queens only as they are inside of the hive, except that they accompany swarms which issue. When I wrote what I did I was writing from the standpoint taken by the multitudes who had kept bees for only a few years, or had from three to fifty colonies.

Again, it will be noticed that I was talking about young or *virgin* queens. Now allow me to propound a question for these "older heads" to answer. Did any of them ever hear a *virgin* queen pipe or quahk at or in any other place than the combs of the hive where there was rivalry among these queens? If they have, then I am "behind the times," as our questioner says. I have sent out scores of virgin queens in the mails, but I never yet heard any virgin queen pipe in the cage nor in any other place, except on the combs where there were rival queens in queen-cells. In my writings I have always tried to give something useful to the great mass of everyday beekeepers, and something which they could reasonably put in practice with the means they had, without going to some great expense to secure something they did not have.

GENERAL CORRESPONDENCE

DIFFERENT VIEWS OF FOUL-BROOD DON'TS

BY G. C. GREINER

In a former number of GLEANINGS a beekeeper from the West gives a list of "Don'ts" which he considers a safeguard against foul brood. Some of his points are all right, but others I cannot endorse without some remonstrance. The limited space of an article of this kind forbids replying in detail to the different features his 'don'ts' cover, although it would give me great pleasure to do so.

Our friend advises "burning all diseased hives unless there is a large percentage of the apiary infected." Why does he make this difference in the number of hives infected? If it is advisable or necessary to burn a few, would it not be more so when a large portion of the apiary is in the same condition? It may be the least trouble, causing the owner less work to commit his hives to the consuming flames than spending time in cleaning them up; but it is also the most wasteful. From experience I know that infected hives can be easily prepared for future use without the least danger of detrimental consequences.

A day or two after I had finished treating my last foul-broody colonies four years ago,* our foul-brood inspector called on me in his inspecting-tour; and while looking over the rows of hives with their rotten contents our discussion naturally turned to the question of what best to do with the rotten mess. Of course I had decided to burn all the contents of the hives, but felt somewhat undecided about the hives. It seemed like a pitiful waste to see the work of former years so ruthlessly annihilated, to say nothing of the material, unless it was strictly necessary. Here is where Mr. Stephen, the inspector, came to the rescue. He suggested two methods—either scorch the inside of the hives with a gasoline torch or thoroughly scrape and liberally paint with kerosene. I decided on the latter treatment, because the scraping alone would make them mechanically as good as new.

One evening, after all danger from flying bees had passed, I burned the frames and combs; and to make a clean sweep I moved the hives into my carpenter shop where I securely closed them up against all possible access of robbers. During the winter I did the disinfecting. After scraping every particle of inside surface thoroughly I gave them a soaking coat of kerosene, using a large flat brush for this purpose, which made them practically as good as new. I use these very hives to-day.

LETTING BEES CLEAN OUT EXTRACTING-COMBS.

Then our western friend advises not to set out extracting-combs for robbers to clean up. It may not be strictly necessary to let bees clean out extracting-combs before storing them for winter, but it is preferable. The honey remaining in the combs after the last extracting will granulate; and when mixed with the next crop it will hasten its granulation. During the early part of the season bees will clean out this granulated honey before storing the new; but when honey comes with a rush they have not the time to do it. If our friend objects to letting bees clean extracting-combs on the ground that it is liable to spread the disease, I am inclined to think he is more scared than hurt. I have practiced the same plan for fifteen or twenty years, and see no reason why I should break off now. Of course, it must be done in the right way, and we must be sure that there is no disease in the yard.

The one-bee-passage plan, as advised by some of our most prominent beekeepers, does not engage bee nature to the best advantage. It defeats our object in more than one way. Instead of assisting our bees in the performance of a certain function we hamper them all we can. It only gives the stronger portion of the bees engaged the advantage over the weaker ones; and the latter, when driven away or crowded back, will try to enter some other hive, possibly a weak or queenless one, where their presence is not desired. Even if no vicious robbing is noticed, peaceable robbing, as we generally call it, is liable to be started. And this is not strange; for the beekeeper's own mismanagement has taught them the trick. The stinging inclination, which we always notice when bees are robbing, is caused in this way. Those bees that are crowded back are not so willing to give up. They know by scent and general disturbance that honey is being found; and, being excited and deprived of the privilege of partaking themselves, they vent their spite on anything they run across.

Besides teaching bees to fight, and fight

* We assume that our correspondent is talking about American foul brood.



The late afternoon is the best time to permit the bees to clean out extracting-combs.

at the most dangerous place, the hive-entrance, the small passage, is the cause of another very undesirable feature. It wears bees out unnecessarily. The constant rumpus at the small opening, the rolling and tumbling, the pushing and crowding to gain admittance, exhausts the last remnants of vitality of the older stock, for it is mostly that class, the field workers, that suffer in these combats. After they have forced their way in and have loaded themselves it is the same scramble to get out. At best it is a cruel treatment we inflict upon our bees. Some of our experienced beekeepers advocate this plan, and call it the proper way.

As a comparison I refer the reader to the accompanying illustration. It represents a few stacks of extracting-combs and bait-sections ready for the cleaning-out by the bees. At the proper time, which I will explain below, all the covers at the top are removed. Previous to this no bees are allowed to enter the stocks, and special attention is paid to the closing of the hive-entrances. In a very short time, after the stacks are opened, all the bees of the yard seem to be on the job. As they can go in and out uninterruptedly, there is no crowding or fighting, no stinging or wearing themselves out. Bees have free access anywhere; and from all appearance they act almost as natural and unconcerned as when gathering honey from the field during a honey-flow. There is not the least danger of being attacked when walking through the midst of them, as is frequently done when this operation is under way. It is needless to say that it does not teach them to look for mischief at the hive-entrance which is one of the objectionable features of the one-bee-passage plan.

Selecting the proper time of opening the supers, referred to above, is the only part of the program that needs a little more explanation. About 3 o'clock in the afternoon on a warm, pleasant day, when bees are flying freely, and when there is no prospect of a chilly night to follow, is the time to give best satisfaction—first, because bees have sufficient time before nightfall to finish their job. Incredible as it may seem, I know from experience that any number of colonies, large or small, will clean out the supers they have used during the season in less than two hours if conditions are favorable. But it must be remembered that I extract direct from the hives. If honey has been removed for days or weeks before being extracted, it may take longer.

Second, in case of an absolute honey-dearth, when bees are more or less aroused, which the exposure of honey will always cause at such times, the oncoming night will quiet them again before they have time to plan another raid.

Third, being so nearly time for bees to quiet down for the night, neighboring bees are not so liable to be attracted by the exposed honey.

Some beekeepers do not favor the open exposure of honey, because the strongest colonies, that need it the least, are apt to get the biggest share. This is true. But it is too small a matter to take into consideration. All the honey bees can carry away in the short time of an hour or two would

not increase the supply of a colony to any great extent, even if arrangements were made to give one colony the exclusive cleaning-up of five or six supers. But to make this practical requires quite a little work. If a colony is short of stores, a comb or two of capped honey added in the brood-chamber combines the least trouble with the best results.

La Salle, N. Y.

BEE-DISEASE LEGISLATION IN NEW ZEALAND

Keeping Bees in Box Hives Illegal

BY W. E. BRAY

New Zealand beekeepers from the earliest days of commercial beekeeping have adopted American methods and appliances. Mr. Isaac Hopkins was the first to recognize the possibilities of the new methods, and the credit is due to him of having shaped a good course for others to follow. To him also is due the credit for the "efficiency apiaries act" which we possess. Already it has enabled us to make considerable headway in the battle against disease.

Though the bee-journals are concerned mainly with the commercial side of beekeeping, the readers now and again get glimpses of the go-as-you-please style of beekeeping which is generally associated with box hives. It is the farmer who keeps a few bees for his own use in box hives who is to blame for the continued spread of disease in the United States in spite of the efforts made to control it. Many of the states in the Union have an apiaries act on their statute-books, yet hardly any two acts are similar, and, in the opinion of New Zealand beekeepers, none of them are as efficient as ours which was passed in 1907.

From 1908 to 1910, as an inspector under the act, I had practical experience of its application; and I may say that provision is made for every condition likely to confront the inspector, and no one has yet driven the proverbial "coach and four" through it. Numbers of successful prosecutions have been instituted under the act, and in this respect I think our act stands alone.

The inspectors are permanently employed, there being four on the staff at present. This is much better than appointing beekeepers to do the work in their spare time. The inspector has the right to enter any place where bees are kept. In some states he can go only where disease is reported, so he has little chance of finding the source of infection. Under an amendment passed last year we expect regulations to be issued shortly to provide for compulsory annual registration of apiaries so the inspectors will have no difficulty in locating every hive.

In some of the states the inspector is hedged around with all sorts of restrictions due, I suppose, to the fact that he is not a permanent official. Our act specifies what the beekeeper must or must not do, and the inspector is there to see that the act is complied with. No compensation is paid for diseased colonies that have to be destroyed, and the inspector can use his discretion in condemning them.

But it is the clause that makes the use of the box hive illegal that has been the mainstay of the act. The box hive is the careless beekeeper's hive. The box-hive man never cares—in fact, he does not know—whether his bees are diseased or not. He is satisfied to get a little honey sometimes; but in taking it he may spread disease right and left. This class of beekeeper was all too common in New Zealand; and, while he was allowed to continue, it was hopeless to expect to control disease. He had no financial interest at stake, yet he imperiled the very existence of apiaries which cost hundreds of dollars to establish.

This clause has been firmly enforced, with the result that a good number have stopped keeping bees altogether, with no loss to themselves and to the benefit of the industry. Others transferred, but they continued their slipshod methods, thinking the frame hive was an automatic affair that required no attention. This class too generally decide to get rid of their bees when the inspector comes along and requires them to do certain work to cure the disease he may find. Then there were others who transferred and realized the advantages of frame hives. They have been only too ready to learn all they can about their bees, and are as anxious as anybody to fight foul brood. It is this class that is to-day swelling the ranks of the up-to-date beekeepers. The result now is that some districts are entirely free of foul brood, and in most of the best beekeeping areas the amount of disease is very small to what it was, and is rapidly diminishing. There are fewer beekeepers; but more and better bees and honey are



One hundred twenty-five colonies wintered almost without loss, at Sabetha, Kans. Many of these had a set of extracting combs, containing a very little honey, *under* the brood-chamber.

being produced by the ton where not even a hundred weight was formerly produced. The opposition to this great change has been infinitesimal.

It is difficult for a publication like GLEANINGS to advocate the compulsory use of frame hives without the cry of "self interest" being raised; but if the beekeepers themselves study their own interests they should, at their meetings and conventions, give their approval to the principle that bees must be kept in hives which allow a thorough inspection to be made of the combs. Then with permanent inspectors on the job all the time they will get some value for the money expended on their behalf.

Wainin, N. Z.

COLONIES SUCCESSFULLY WINTERED OVER A SET OF EMPTY COMBS

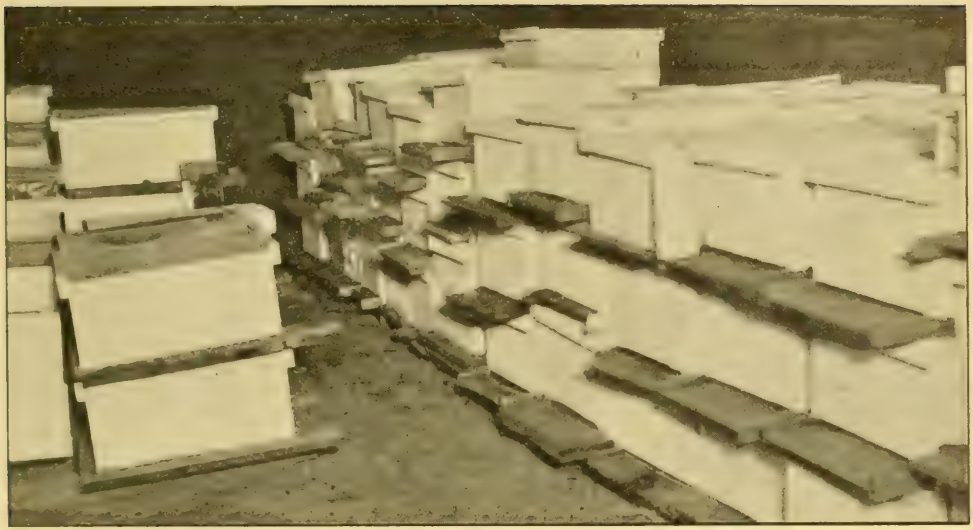
BY FRANK HILL

I have a neighbor who last fall had eight colonies of bees. Last year was very dry and hot, and the honey crop was an entire failure. By my advice he fed all his colonies, but he did not feed all at once as I advised, but a quart or so at a time at intervals of four or five days. The sirup was made of granulated sugar two parts, and water one part. In making it, water was heated and the sugar stirred in after the can had been taken from the stove. The sirup was fed to the bees from a perforated can in a super, and in the latter part of September and first part of October he did not pack his bees very well, but they had a burlap cover over the frames with a good tight wood cover over that. With no more protection than this he has wintered for years; and always, before, his loss has been very small. All his bees died.

Another neighbor having had 18 colonies lost all but five. This man did not feed till very late; but his bees died the same way. They seem to have died of dysentery as the frames and combs are daubed and are in a filthy condition.

My bees wintered splendidly, and only one colony died. At no time during the winter was there a longer time between flights than three weeks. We had two cold snaps, mercury going down to —13 once and —15 once. We had more snow than we ever had. My bees were fed in September from Miller feeders, the necessary amount being given at one time. As there was absolutely nothing coming in in the late summer and fall I also fed from outdoor feeders, for a month, thin sirup to get the queens laying to get young bees for the winter.

When the bees got strong a year ago last spring I put extracting-supers on all of them. The season was a failure, and there was not a super in the lot that had more than 4 or 5 lbs. of honey in it. As shown in the photograph I put some of these supers *under* the colonies. All the colonies



Danielson's 146 colonies in a 14 x 28 cellar, which wintered without loss.

have a four-inch tray with burlap bottom, filled with planer shavings over them. Over that I folded tar paper that comes well down the hives with the excelsior cover on top. Is it not an advantage to put a set of combs full depth under a colony of bees before the winter sets in, even if there is not a drop of honey in them? It seems to me as if they would be better protected from the cold winds, and they would not be as apt to come out on bright cold days. If there is any objection to this plan I should like to know it.

Sabetha, Kan.

[This plan has been tried before, but we do not recall any other definite report as to its value. We should suppose the entrances would have to be guarded by wire screen with mesh large enough to let the bees in and out, but small enough to keep the mice out—otherwise there would be danger that the mice would revel on the exposed combs and destroy many of them.

If any honey were left in the combs in the spring, would there not be danger of robbing?

If any of our readers have had any practical experience with the plan we should be glad to hear from them.—ED.]

A SUCCESSFUL CONCRETE BEE-CELLAR

How a Low Temperature and Damp Atmosphere were Overcome

BY J. I. DANIELSON

I am sending you a flashlight picture of my bee-cellar that I built last October, which is 14 x 28 ft., with a building of the same dimensions. It is ventilated by a five-inch tile running 120 ft. from the cellar, in which the fresh air comes through and the damp foul air passes out through a trap-door in the floor above. But even with this ventilation the cellar has been a little damp.

I put 146 colonies in the cellar Dec. 10 and 11. There was snow on the hives which we could not sweep off, so it also went into the cellar with the bees. It soon melted, and caused some dampness.

The cellar-walls are made of cement, which did not get thoroughly dried. There were large drops of water all over the wall and floor above.

The floor is of one-inch lumber which is not frost-proof by any means. It turned cold in a day or two, the thermometer registering 10 degrees below outside, and the temperature in the cellar was below the freezing-point. The walls and ceiling were covered with frost. I was thinking the cold weather would not last long; but it hung on for several days. The idea struck me, that sawdust would be a good thing to put on the floor to keep out the frost. So I got a load and spread it on about four inches



Polk County beekeepers' picnic, July 14, 1915, held at the apiary of N. J. Harris, Highland Park, Des Moines, Ia.

deep. That ended the frost on the ceiling, but the temperature was still too low, so I put a small stove in one corner of my cellar, letting a stovepipe through a window. This raised the temperature and dried out the cellar. The temperature then stood at 43 most of the winter. I did not use the stove after the dampness was removed.

The bees wintered in fine condition without the loss of a single colony. However, after removing them from the cellar I lost six. Three of these were queenless. Two were robbed out, and the bees of one drifted, as it was a very windy day when I set them out.

I swept up one bushel of bees from the cellar floor. A few showed signs of dysentery. I do not think dampness is destructive to bees at a temperature of 45 degrees, with a good current of air. There was quite a bit of brood-rearing in all the colonies, so they were practically as strong when taken out as they were when put in the cellar.

Fairfield, Ia., April 23.

IOWA BEEKEEPERS' PICNIC

BY F. C. SCRANTON

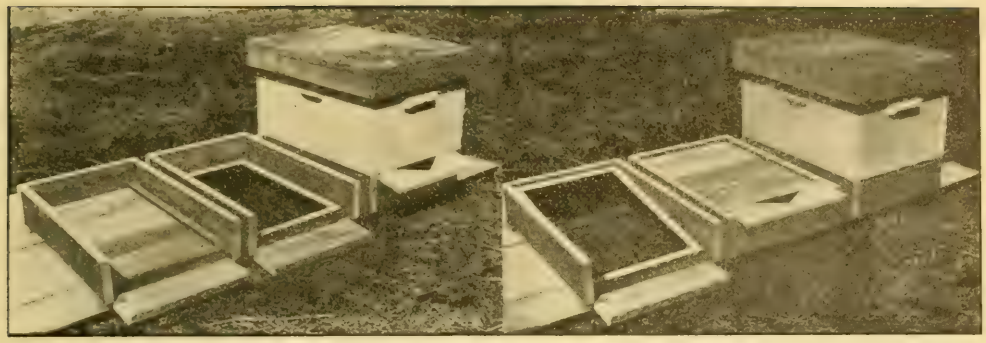
There were about 65 in attendance at the picnic of the Polk County Beekeepers' Association.

Dr. Pammell and Prof. Bartholomew, both from Ames, and Mr. Pellett, state bee inspector, gave very instructive and interesting talks. The beekeepers were very fortunate in having these three men in attendance. Miss Vessie Clow entertained with a fine reading, as did also Arthur Wright. J. W. Schlenker, of Ankeny, gave a demonstration in shaking. C. E. Dustman, of Des Moines, had a fine lot of queen-cells in various stages. Mrs. Longworth, the vice-president, presided in the absence of John Schweer, the president.

Two things the Polk County Beekeepers' Association can be given credit for are, securing recognition of beekeepers' associations in the State Fair Premium List, and securing a deputy county inspector for Polk County. Just as soon as Inspector Pellett saw the need for the inspector in this vicinity he decided to appoint a man for the work.

The object of the association is the encouragement of good fellowship among the beekeepers, educating the public in the use of honey, thereby increasing the demand, co-operation, and betterment in all directions. Probably the hardest thing we will find to cope with will be the securing of better prices as there always seem to be a few beekeepers in every locality who will dispose of their crop at any figure they can secure of it; but we can accomplish a great deal by united and determined effort for betterment in this line.

Des Moines, Iowa.



Swenson's combination hive bottom, valuable for ventilating, and also for moving bees.

THE BEST BOTTOM-BOARD THAT I HAVE TRIED

BY ED. SWENSEN

There has been so much written on different bottom-boards that I will describe the one I think fills the bill the best of any. This one can also be used as a feeder; but since I prefer the friction-top honey-pail described by J. L. Byer I will merely say that, by inserting a dripping-pan with a float in it, it makes a good feeder for certain times.

The bottom is very simple. It is made 4 inches deep, with the back nailed in solid; but the front piece is hinged so it can be let down and used as an alighting-board. This piece has two hive-hooks which hook on to the side pieces to hold it in place when raised.

There is no floor nailed in solid, but a board of ⅜-inch material with a rim around that slides in or out, which can be raised or lowered as occasion requires. This board is used in early fall, winter, and spring. In the winter it is lowered so as to give a deep clustering-space under the frames, which seems to be their choice when conditions permit. It is also impossible for the entrance to become clogged with dead bees, as the entrance is over 3 inches above the bottom.

In the spring it is again raised so as to make less room for the bees to keep warm; then when warm weather sets in this board is slipped out and a screen frame put in place. Two two-inch pieces are nailed on the under side of this screen frame which hold it together; and they also raise it up off from the hive-stand so the air can circulate through the hive when the screen is in. This screen is tacked on to a rim which has two headless lath nails partly driven in on both sides, which slides in saw-kerfs cut into the side pieces for that purpose.

The front part of this screen can be lowered so as to form an incline; or if the bees are inclined to build comb below the frames the screen can be raised so there will be only a bee-space between the frame and the screen, when it will still serve its purpose as a ventilator. Or it can be lowered so as to give a three-inch space below for moving to and from out-apiaries, or in summer, as extra means for ventilation, which may be necessary to help prevent swarming.

The entrance-block I use is a four-inch piece ⅜ inch thick with a V groove cut into it and a piece of screen tacked on one side. This also serves as an alighting-board. This is slipped in or out to regulate the size of the entrance; and by shoving it far enough the entrance can be entirely closed, which is very handy in moving bees. As we have the screen bottom we need not worry about the bees suffocating. The photograph shows clearly how it works.

Spring Valley, Minn.

THE DEMAND FOR HONEY, AND METHODS OF STIMULATING IT

BY SUSAN E. HOWARD

The demand for honey is increasing, and it is from all classes of people. I try to educate my customers by demonstrating and advertising that honey is not a luxury but a necessary and economical food.

My first venture was in disposing of a surplus crop which did not move to my satisfaction in my neighborhood. Unknown to my husband, who had belittled the possibilities, I sallied forth on a pleasant after-



With the help of the bees, these eight tons of squashes were grown on five-sixths of an acre between 115 fruit-trees and 600 currant bushes; 54 bushels of green peas were also harvested before the squash-vines were ready to spread.

noon with my sample of extracted honey and a supply of hand-whittled toothpicks for individual sampling. I purposely chose a section of the town where I was little known, so that my success or failure would be on the merit of the honey as sampled or on the method of presentation.

Success was beyond expectation, and I returned triumphant to relate my experience and plan a new campaign for the morrow.

Increased duties have taken me from this work which I enjoyed, and which I have found had a lasting result in that the local stores sought my honey as people demanded the "Howard Honey." Previous to my canvass the storekeepers were reluctant to stock my honey, saying they had but a "limited demand," etc. It seems a business law that a dealer will not stock an unknown commodity; but when a demand is created by the customers expressing a preference, the dealer, if progressive, will supply it. In the language of the pharmaceutical manufacturers, "I have detailed the doctors." This, as carried out by the manufacturers, is to have traveling men call upon the doctors and leave samples of their preparation and extol their virtue and possibilities.

It is a common experience to have strangers call at the door and ask for honey, stating that their doctor recommended it for a cough or other bronchial affection, and had suggested or recommended that he could get pure honey at the bee-camp.

Duplicate orders are a large factor in my business, and I always consider my first order as introductory, and mention to the transient customer that I will fill all repeat orders with the same quality of honey, and by parcel post if desired. My experience is that price is a secondary consideration if the honey is clear, packaged neatly, and securely sealed. Under these conditions repeat orders are assured.

The container I have adopted is the regular lightning glass jar which appeals to the housewife as of value after the contents are used.

If near a thoroughfare, place a sign in a conspicuous place announcing "pure honey for sale," and you may be sure of sale, especially if colonies of bees are in evidence. It is no unusual sight to see two or more automobiles at my gate, as I live on a much-traveled highway, and much of my trade is from a distance.

Another way of creating or stimulating the demand is by the distribution of leaflets which give recipes for the use of honey in cooking and medicine. These may be procured with your name and address for a nominal sum.

Always label your honey as of first quality, also with directions for keeping it if not for immediate consumption.

If your motto is "Quality and Absolute Purity," you need not question your future sales, but can feel assured that success will reward your efforts.

THE VALUE OF BEES IN FERTILIZING SQUASH BLOSSOMS.

Replying to your inquiry as to the value of bees to my squash and small fruits, I would say they are of the utmost importance, and they have been a great factor in my success in growing squashes. The development of a small orchard and fruit-growing is secondary to my bee interests; and while the trees and bushes are growing, I utilize the land by planting catch crops and fertilizing or cover sowings. The eight tons of squash shown in the picture were grown on five-sixths of an acre, which also carried 115 two-year fruit-trees and 600 one-year currant bushes.

The squash followed a crop of 54 bushels of green peas, which were harvested before the squash were ready to spread.

As recorded in Apiarian Bulletin No. 8, Massachusetts Department Agriculture, it was no uncommon occurrence to note four to six bees in a squash-blossom at one time, happy and contented. I have also counted 28 bees within an hour in one squash-blossom. The squash crop was the banner one for this section, for the land occupied, and was in marked contrast with results at a distance from my apiary.

To people who realized in a measure the good work performed by the bee it was a revelation, and substantiated my oft-repeated statement, "bees as flower fertilizers first, and honey production an after-consideration."

Stoneham, Mass.

THE VALUE OF SEPARATORS IN COMB-HONEY PRODUCTION

BY G. W. JOICE

Allen Latham goes after the production of comb honey with separators rather roughly shod, July 1, 1915. Some of his statements being so far from "truth for this locality," for fear that such an article coming from such a well-known apiarist



might cause many beginners to attempt something that they cannot succeed in doing, I write this article in defense of the use of fences or separators. In fact, I wish to give the readers of GLEANINGS both sides of the story. I beg permission to quote often from the article by Mr. Latham.

"Which system can be made to yield the better average results?" Beyond all doubt, the average beekeeper and all beginners will succeed best by using separators. In fact, 99 per cent of the honey-producers would not have sections, even enough to put on the market, unless they used fences. (I am using the words fence and separator to mean practically the same.)

One of the objections to the non-use of separators is the trouble in crating on account of bulging combs. I discarded the idea of getting along without separators on account of the trouble with bulging combs and varying weights of sections from the same super. I was using full sheets of foundation at the time, but they would bulge anyhow. I have had finished sections weigh anywhere from 8 to 27 oz. each (extremes, of course), while with separators I have had 80 per cent of my crop grade "Fancy" to "Extra Fancy," and weigh within one ounce of the same all the way through. I never could come anywhere near that without separators.

Mr. Latham blames bulging to the use of weak colonies for comb-honey production. Not it, friend Latham. The strongest colonies are often terrors at the bulging trade, even going to the extent of tearing out the foundation (full sheet) of the next section, and bulging right on through it. In regard to brace-combs, that is something that is a rare bird with me—perhaps one section in a hundred. Often that is traceable to the foundation coming loose and lopping over against the fence.

I fully endorse Mr. Latham's views on the carton question, excepting that I do not care to have the honey more than even with the wood. Fancy comb will not stand half the pressure Mr. Latham would lead the reader to believe. I carton practically all my honey for the retail trade and think it money well spent.

Mr. Latham writes: "Arguments for the production of non-separatored honey are more than two:

"(*a*) It is less labor to prepare supers.

"(*b*) It is less labor to care for the product.

"(*c*) Bees more readily enter the supers.

"(*d*) Swarming is greatly lessened.

"(*e*) Honey is of better quality.

"(*f*) More sections can be put in a super.

"(*g*) A bigger crop can be produced.

"(*h*) Better for business."

I concede *a* and *f* without debate. As to *b* I acknowledge there are no separators to bother with; but think of the odd weights and various contortionate shapes some of the sections present. I should prefer separators for the ease of caring for the product.

In regard to *c* it is true, but not to any great extent. Perhaps they enter sightly better, but there isn't a great amount of difference. In regard to *d* my experience is the opposite. On account of the combs being built so close in the super, thus shutting off ventilation, the bees swarm more readily when the supers are without separators. Note that the Danzenbaker fences are similar to the dummies used in the Aspinwall non-swarming hive.

Passing to *e*, I find that honey produced with fences is of the better quality. It ripens more readily, contains less wax, is whiter, more fragile, tastes better, and sells more readily on the market. If I were to go back to producing honey without fences or separators I should lose half my customers on account of excessive thickness of cappings and waxiness of comb.

Passing on to *g*, the crop may be a few pounds heavier (I cannot see how), but is



lacking in uniformity. You are giving ten points of quality to gain one point in quantity. Mr. Latham acknowledges uniformity when he makes the following statement: "The casual observer will not note the slight difference in the sections of a fancy lot of separatored honey * * ."

In regard to the challenge, I cannot see that it would have anything to do with the matter. No doubt Mr. Latham could select a nice even super of sections from his apiary, and the editor do likewise. But carry the matter out among the amateur class. Compare the entire crop of the amateur (he may follow any instructions that Mr. Latham might write) not using separators, with that of a like amateur using separators.

Edon, Ohio.

[Mr. Latham has just sent us another very interesting article and several photographs which we shall probably reproduce in our Oct. 15th issue.—ED.]

ADAPTING EIGHT-FRAME SUPERS TO TEN-FRAME HIVES

BY J. SAMUEL COX

It is almost impossible to do successful beekeeping with eight-frame hives, owing to the persistent swarming as soon as there is nectar in the field. All the hives of my first apiary being of this size, I had a great deal of swarming to encounter; but running for increase I was able to overcome in a great measure, taking all the first swarms and exchanging the old brood-nests for increase, in this way doing away with after-swarms.

When I could no longer use these brood-nests for increase, then came the trouble; for as soon as they were full of brood they again started to swarm. I was obliged to put all the brood on top of one super and give foundation below; for when I used drawn-out combs the bees were sure to fill them with honey before the queens could put enough eggs in them.

This interchange of combs soon gave me more drawn-out ones than I could find use for. Having a good stock of these eight-frame hives, bottoms, covers, and honey-boards, it was not possible to discard them. How to use them successfully, avoiding excessive swarms, surplus combs, etc., and get a fair honey crop, was a problem I had to face, the outcome of which is the accompanying picture.

All the brood-nests are now in ten-frame hives, while all supers are still the eight-frame bodies with eight-frame honey-boards and covers.

Having my ten-frame brood-chamber in its proper position all ready for supering, I take a piece of board previously prepared, the full length of the hive, 3¼ inches wide, ⅞ inch thick on one side and ¼ on the other; putting on the wood-bound honey-board, I allow it to hang over ¼ inch on one side, when this above-named prepared piece is put on the other side that the honey-board does not cover. I then take an eight-frame hive with one of its bottom edges rabbeted out lengthwise ¼ inch. Putting this on the honey-board I allow this rabbeted side to project over on the prepared piece so that the ¼-inch groove fits snugly on it. This keeps it water-proof. Instead of making this bit of board ⅞ thick on one side it can be made the same thickness as the honey-board rim against which it butts; but being ⅞ thick it gives a better slant for the water to run off.

As will be seen in the picture, the two hives on the back stand have one of these pieces on each side while the super is in the middle.



Eight-frame supers on ten-frame brood-chambers.

This looks a little better as to its form, but gives nearly three times as much trouble to fix up as the one with only one piece; and consequently, for the man who has little time, I would say the one-piece is better.

It may not be out of place to say here that the small tree on the right-hand corner of the picture is a bay-tree, from which bay rum is made. It is the principal shade for this apiary.

Guayama, Porto Rico.

AN EXPERIENCE WITH A TOWN BEEKEEPER

BY RUTH C. GIFFORD

One morning I was sitting on the edge of our back porch nailing honey-cases together when Mr. K., from the little town of N., drove in. He stopped his horses with a jerk, looked at me very carefully, and then sputtered out, "Say! I got two colonies of bees up in my back yard you can have if you will take them out of there."

"What is the matter with them?" I asked.

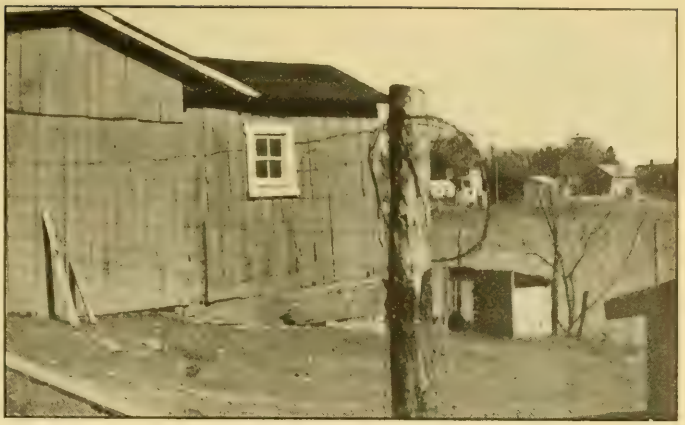
"Well, the blamed things are cross, and I'm afraid of them. Last summer I took the honey from one, and those bees stung me through three pair of pants and two coats. My wife had my head tied up in a sun-bonnet with a lot of mosquito-netting wrapped around it; but the bees got under it, and I had a terrible time. At present they are so cross that they're even stinging to death my chickens and ducks. I wish you would take them away. You can have them for nothing if you get the honey in the top part for me. They are both good strong colonies that will make you a lot of honey. They are in home-made patent hives."

After thinking it over I told him I would take them. But I wondered at the time why he laid so much emphasis on the fact that they were in home-made patent hives. I had never seen any until I saw his, and then I understood very clearly.

As soon as the flow from buckwheat and second crop was well started I went over to take off the honey for him. With me I took my bee-suit, an extra bonnet, a good smoker, and plenty of saltpeter rags for smoker fuel. The extra bonnet was for Mr. K., who wanted to "help."

The bees were at the south side of the barn in the chicken-lot. They were so close to the gate that a woman's dress would brush against one of the hives every time she went to care for the chickens. The lot was fairly large for a town lot, and at the lower side of it was an open meadow. If he had kept his hives close to the fence on the lower side, instead of near the gate, his bees would not have bothered people who went in or out. They need not have annoyed anything in the meadow either, be-

cause he could have fastened burlap along the four-foot fence, and then had a thick grapevine above that. In the photograph, two sticks leaning against the building mark where the hives stood. The gate is just out of sight at the left. If he had placed the hives at the lower end of the barn, or at the sunny end of the small unused pigpen, which is next to the fence in the picture, he would have had less trouble.



A bad place for a colony of bees.

Then I started on those home-made hives. They had two-inch cleats around the outside at the top. The covers were of the gable telescope type, and exactly the same size as the hives, and so, of course, they rested on them and fitted snugly inside the cleats. The supers were a good bee-space smaller than the telescope covers. The bees found this space and just about filled it with propolis. Inside the supers two-inch-wide frames ran crosswise. The bottoms of these frames were narrow in order to let the bees up into the supers; but on the other three sides they fitted snugly together. The lower edge of the super and the bottoms of the frames rested directly on top of the frames in the hives. When I started to work I tried to pry off a cover with a screwdriver, but didn't budge it. Mr. K. brought a crowbar, and after fifteen minutes of hard work, on a hot day, that cover came loose. Every place was stuck up with propolis. The space between the top of the super and gable cover, as well as the super itself, was full of comb honey which had been built in every direction. I smoked the bees out of the way, cut the combs, and pried loose one frame at a time as best I could. It was certainly an awful mess, because every frame pulled apart. As soon as the old frames and comb honey, as well as some half-drowned bees from the first hive had been placed in a wash-boiler Mr. K. carried it to the cellar. By the next morning the bees had crawled out on the cellar floor and were easily swept up. If he had taken the honey directly into the house those bees would have warmed up and been harder to handle.

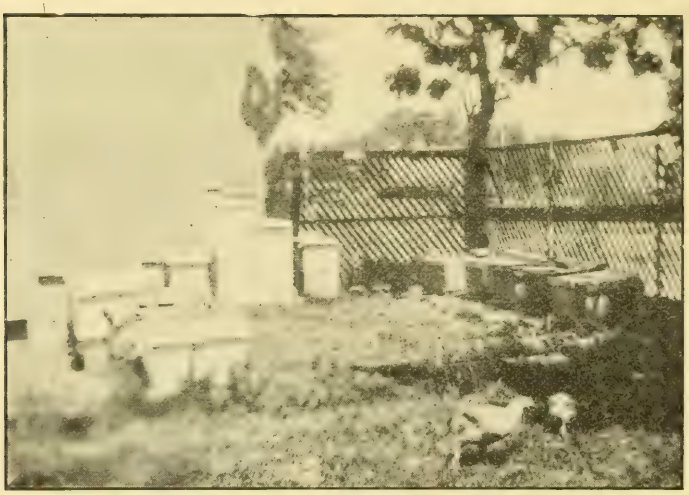
After the second hive was finished I scraped earth over the honey on the ground and took every precaution against robbing. I told him to burn the old frames as soon as he cut the honey out of them, and to be very careful not to leave the frames or any pieces of comb where the bees could rob them out, because it would make trouble with his neighbors. Imagine my surprise, a few days later, to find all the frames and some combs in the back yard—entirely clean. The street must have been a lively place while the bees were getting that honey.

North East, Md.

ANOTHER TESTIMONY IN FAVOR OF "AIR DRAINAGE"

BY JOSEPH S. EWING

I read with interest Mr. E. F. Atwater's article, p. 496, June 15, on air drainage. I want to verify his statement from my own experience. In the enclosed picture of my apiary you will notice part of the hives set out from the building so that the winter wind sweeps around the corner. The others stand back in the corner where there is complete protection from the wind. Last winter there was no lattice work as shown in the picture. The seven hives that were in the "sweep of the wind" this spring came out in fine condition—scarcely any bees on the bottom-board. On the other hand, the thirteen that were protected had great quantities of bees on the bottom-board, and two hives were dead, the bees being still between the frames with plenty



Sixteen colonies kept in a churchyard close to a hitching-rack that is often full of teams. The bees have made no trouble.

The parsonage adjoins the church; the back lawn comes to the edge of the apiary, and a corner of it shows in the picture. This lawn is a playground for the pastor's five children. It is the "social center" for other children in the neighborhood. Their sandpile is 36 feet away. Back of the lattice is a hitch-rack 25 feet away. This is often filled with teams. Some 200 Sunday-school scholars meet in the church and basement. One of the entrances to the Sunday-school room is not over 15 feet away. Last year there was no lattice between bees and the hitch-rack. No one has ever been stung or disturbed by the bees except on one or two occasions when, in mischief, one of the children disturbed the hives. Bees seem to get used to people and teams. They are Italians.

of stores and no foul brood. I can now understand how it happened.

This apiary consists of sixteen stands. It is located in the rear of the Methodist church, the corner of which shows in the picture. The church is located on the corner of two of the most important streets in town (Caldwell has about 4000 people).

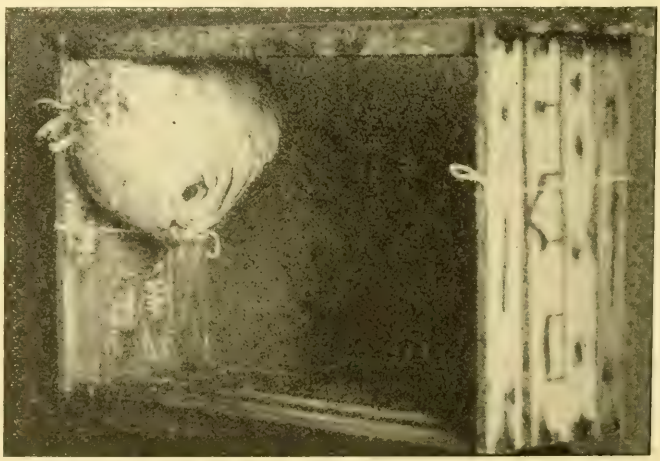
Caldwell, Idaho.

ACH, DOSE BEES! DOSE BEES!

BY VILHELM BEECUS

Vell, I dunno. I don't belief haff uff vat I hear alretty. I haff been reeting dose bee-papers a long vile, und sometimes ago I ret dot der easy vay to make money out uff bees iss to let der bees come und make dere home mit you. Vun feller sess he put up many poxes in der trees und dey vas all filled mit bees unt honey in der tvinkling uff an eye. Vel, ven I ret dose beautiful vorts, I set: "Dot iss elekant lankvidge. Vot a dunderkop I haff been! Fortune hass been tr-r-rying to flirt mit me from der tr-r-reetops, like a coy and chentle maiden, und I haff been so blind to her beauty as a bat mit glass eyes." Und den, at vunce, I got so plumb full uff der milk uff human kintness dot ven I took off my hat dere vas a grease spot on der hatband.

Und den I vent out und grabbed a un-



Dey vas all yellow chackets.



A carload of bees twenty-four hours after they arrived at Fisher after a trip from Ordway, Colorado, 1115 miles. They were shipped in a 36-foot boxcar. The number of colonies was 342. I could have put in 72 more, and not lose any. I watered them once a day. S. J. ALEXANDER, Fisher, Ark.

suspecting hive by der pants und der nap uff der neck und started for der voods. Vee will be a fodder und a modder to der little orphans vot iss mitout a home und iss battling mit der bloodtirsty elements, I set. Vee vill put up a asylum und dedicate it to der little bees; und vee vill took our pay in honey alretty. Und den I climbed der tree und laid der cornerstone in der branches. Ven I got down to der grount again I stoot dere a moment amit der silence und looked at der noble trees mit beards dot rest on der bosoms und vich neffer hat a haircut yet.

Dis vas obout der first uff Chune, chentle reader. Vell, in Aukust, I tought: "Now iss der time to go und collect der rent from der orphans vat I haff so kindly provited for." So I took me such a bik pail yet und I vent by der voods again. Soon I stoot again by der bik tree. Mit a shout uff choy I started up der trunk. Dere vas someting flying in und out uff der entrance. Ven I got to der hive, I set: "I guess I go round by der back vay so I don't disturb der little bees in dere kind vorking." Den I pulled up der cover vile a great choy vas struggling mittin me. "Ouch! ouch! ach, Himmel! Vat iss!" I set, vile a tousand orphans chust flew out eakerly to meet me. Vell, I chust paussed vun awful second, und den I plunched down to der grount. I tink now dot vas der greatest dive dot der vorld hass effer seen. Ven I reached der grount I felt dot dis iss no place for me, und I made up my mind to vent home. I slidded und I skidded und I hidded, but der enemy vas efferyvere. Ven der battle vas ofer, und I reached a clearing, I fikkered up der losses. Dere vas too thousand killed, tree tousand vounded, und sixteen tousand missing. Dey vas all yellow chackets.

A WHOLE HAREM OF QUEENS

BY O. BRONFIELD

On June 25th one of my colonies sent out a second swarm.

While the bees were issuing I put on a queen-trap and caught two queens. The swarm settled contentedly, showing that they had a queen. The two caught paid no attention to each other in the trap. When I hived the swarm I found two more queens and let all four go with the swarm into the hive. The swarm refused to enter the hive until I put in a frame containing eggs and brood.

Next morning they swarmed leaving some bees on the brood. I hived them by putting an empty brood-chamber on the hive and dumping them in on the frames, quickly putting on the cover. I then put a queen-trap on the hive.

On June 27 the parent colony sent out another small swarm with three queens. I dumped them, queens and all, on the first swarm, making a fairly good colony with seven queens. This morning, June 30, they again swarmed. The trap caught one queen



Exhibit of J. P. Lucas for the Kansas Fair in 1914.

but others evidently passed through, as I saw two when hiving the swarms. How many remained in the hive I do not know. More bees stayed with the brood this time than before.

I opened the hive and found on the frame of brood seventeen queen-cells, all containing larvæ.

To sum up, several virgin queens lived harmoniously together for five days, and the swarm, meantime, started seventeen queen-cells and swarmed out.

They drew out very little of the foundation on which they were hived.

The bees were Italian hybrids.

Asheville, N. C.

A SENSIBLE AND VALUABLE EXHIBIT AT THE KANSAS STATE FAIR

BY J. P. LUCAS

Many a time I have been accused of allowing my bees to destroy my neighbor's grapes and peaches, so I had a glass hive and super made, and in the hive put a good strong colony of bees; and in the super, as shown in the photograph, a dish of peaches and one of grapes. I thought it would be a novel idea to make such a display for the fair, as it would show the people that bees will not destroy sound fruit. I had the hive at the fairgrounds for a week, and then took it uptown with a nice lot of honey and placed it in a show-window where it stayed two weeks longer. During the three weeks the bees had not touched any of the fruit.

The other illustration shows a part of my display, especially the building made of extracted honey, which caused lots of comment.

On the end toward the front I had honey produced from 24 different plants, all plainly labeled.

The door and windows were made of wax molded in small cakes, and placed on a board. The roof was made of bottles of honey, and on the sides and the other end I had my honey for competition, while in the background were the dried specimens of honey-plants and fruit put up in honey. I commenced canning fruit in honey five years ago, and have continued every year. So far, all of it, even that which is five years old, is in perfect condition.

Topeka, Kan.

BEES AND ORCHARD BLIGHT

BY E. R. ROOT.

A short time ago a correspondent of the *Rural New Yorker* protested against the attitude taken by editor Collingwood, favoring bees in orchards. The latter sent the letter to me, and asked me if I would present the bee side of the proposition. This I did, and my reply was published in the *Rural* for June 12. See Collingwood's letter in GLEANINGS, page 520. Since that time several have asked me why I did not publish the same or a similar thing in our own journal. Among them is a letter from Thomas F. Rigg, editor of the horticultural department of the *American Poultry Journal*—a journal that A. I. Root says is among the very best of its class. As Mr. Rigg is a horticulturist, and is not particularly interested in the bee side, except for the good it does to fruit culture, his endorsement means something. I am glad to give the letter here; and in doing so I accede to his request. Here is the reply.—ED.

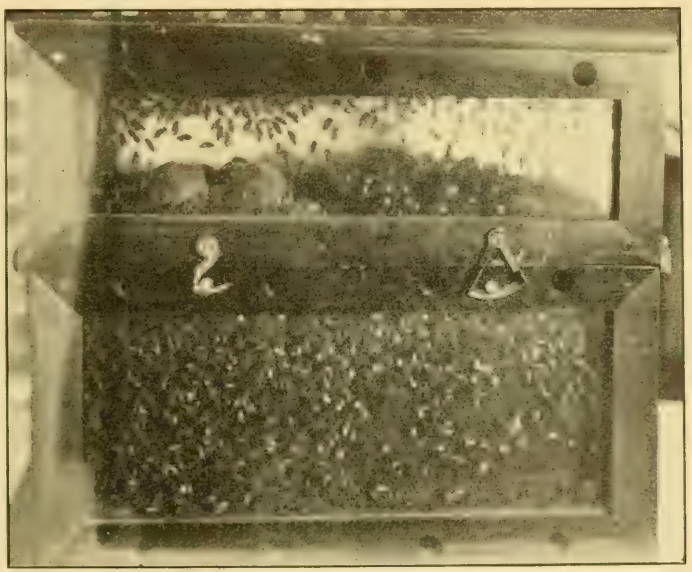
Mr. Root:—I have just read your article in the *Rural New-Yorker* of June 12, your reply to "I. C. R.," of Dansville, N. Y., regarding bees and orchard blight. I want to congratulate you upon the able and forceful manner in which you stated the facts in the case. Of course, bees *can* carry blight, and so can numerous other agencies of creation which God in his wisdom placed in this world for doing their work in the interest of mankind. That the bee is of great value and service to the fruit-growers is a fact so well established that none but the very stubborn or uninformed person will dispute it. I hope every fruit and farm journal in America will reproduce your article.

THOS. F. RIGG.
Iowa Falls, Ia.

I notice you have bees in orchard and your approval of the plan. All looks very well and is all right until there comes a year when the blight sweeps over that section as it did through this part of the state last year. This blight is carried by bees and insects; and the more numerous, the more damage. The statement was made on the institute platform last winter that bees in an orchard were a great damage, and that they had done hundreds of dollars' worth of damage in some orchards the past season. As we had a dose of it ourselves, and I spent six weeks cutting out little blighted twigs, and in some cases lost the whole tree, I certainly agreed with the statement, though it was, indeed, a great surprise to me to hear such a statement made, as I had been of the same opinion as you, in regard to the value of bees in an orchard.

Dansville, N. Y. I. C. R.

It *is* generally admitted by practical and scientific beemen that bees may carry blight; but that they may do the larger part of it is not proven. If all the bees were removed from districts where blight has started, there are flies and other insects, as well as common ants, to scatter blight right and left. The syrphus flies are a common example of a fly that looks very much like a yellow-jacket, and which frequent the blossoms of fruit-trees in early spring.



A practical exhibit for a fair. Silent proof that bees do not touch sound fruit.

The writer was called to inspect some pear orchards in central California, in the Joaquin Valley, about 15 years ago. It was alleged that the bees were the sole and only means of scattering the blight; but I proved beyond any question that young trees just set out, and which had never blossomed, were blighted worse than the older trees. Myriads of ants were crawling all over the trees as well as the young ones; and flies of every description, as well as bees, were present in the orchard. The bees were removed to accommodate the fruit-growers; but very little fruit set the following season,

and the pear men were among the first to ask to have the bees brought back. In the mean time, they had neglected to prune off the blighted limbs. Instead, they applied patent medicines; bored holes in the roots of the trees, and poured dope into the holes. The result was, that the blight practically destroyed the orchards. The destruction should not be charged to the bees, but rather to the ignorance of quack doctors.

This matter of blight among ordinary apple-trees comes and goes certain seasons. Some varieties of trees are more immune than others; but even if we admit that the bees do the largest part in the transmission of blight, no less an authority than M. B. Waite, of the Department of Agriculture, Washington, D. C., has made the statement that, even if the bees do carry blight, they are indispensable in most fruit-orchards, especially if the varieties are sterile to their own pollen. In this opinion he is supported by other scientific men and by most of our intelligent fruit-growers. The facts are, bees do ten times more good than harm in an orchard. The great Creator of bees and trees did not intend that they should be out of harmony with each other; and they are not if man understands his job. In the writer's own orchard last season considerable twig blight showed up in several apple-trees. I referred the matter to our State Orchard Inspector, N. E. Shaw, at Columbus. He came down to inspect the trees; and while he admitted there was twig blight and that the bees might have helped to carry it, he told us not to worry about it, as it would probably all disappear another season, and it did. Intelligent pruning, if the blight runs down the larger limbs, will keep the disease in check. Very often careless pruning spreads the blight, because the shears or saws which are used again on other trees carry with them the infection right into the wood. I do not suppose I. C. R. did this; but unless he was very careful to prune clear back of the blight, and disinfect the tools, he would only aggravate the trouble.

Beekeepers everywhere are being asked to put bees in orchards. We have more calls to supply bees for the large fruit orchards in our immediate vicinity than we can supply. The call has been so insistent from the fruit-growers that we shall need something like a thousand colonies next spring to take care of the demand. One apple orchard of 50 acres grew 16,000 bushels of apples where our bees were placed by request; and we might cite hundreds of instances of a like nature, but we will refer to only one—the famous Repp Brothers, of Gloucester Co., New Jersey. These people raise apples and other fruit by the tons and the thousands of bushels, and yet they say they must have bees and plenty of them. Blight? Yes, there may be a little of it; but what of it? They cannot get along without the bees.

If I. C. R. will cover some of the limbs of his fruit-trees with mosquito-netting the spring before they come into bloom, on varieties that are sterile to their own pollen, he will be surprised to see how little fruit will set. If he needs authorities as evidence, let him consult the Experiment Station at Ithaca, N. Y.; the Experiment Station of Oregon; Horticultural Commissioner Dr. A. J. Cook, of Sacramento, Cal.; and California is the largest fruit-growing state in the Union. In fact, I suggest that he get in touch with any experiment station in the United States. The notion that bees, because they may scatter blight in orchards, ought to be banished is as foolish as it is unwise. If bees are a serious menace to the fruit industry, the great mass of fruit-growers would have discovered the fact years ago; but many of them are asking to have them put on their places. An example of this will be found in the next largest cherry-orchard in the world at Bellevue, Ohio. Bees are placed all over the orchard; and when enough could not be secured some were secured from Florida.

E. R. Root.

A HIVE-BOTTOM THAT IS ALSO USED AS A COVER

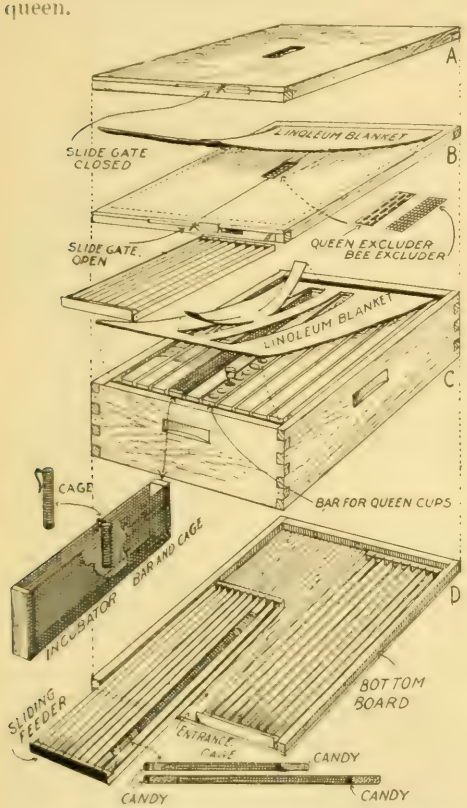
Some Interesting Appliances for Feeding, Introducing, and Queen-rearing

BY WESLEY DIBBLE

My hive bottom is of uniform size, 16¼ by 20, and can be used on any style of hive. It is also used as a cover, and I use it for many purposes, as shown by the illustrations. The rim is of ⅞-inch material which is the proper height for the feeding-pan accompanying it. This bottom-board requires only a flat surface to stand on for one, two, three, or four hives, and is excellent for the Hoffermann winter-stand, four in a group.

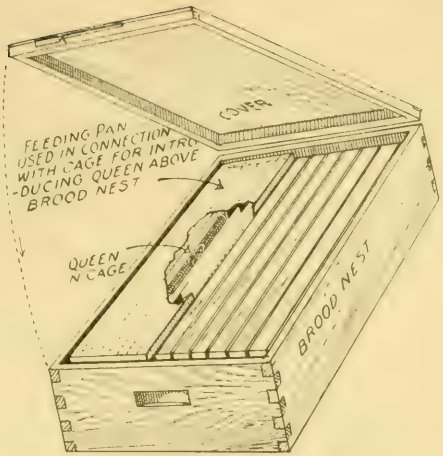
The feeding-pan, which holds one quart of sirup, is also a receptacle for a queen-introducing cage, which I use either below

or above the brood-nest for feeding or introducing queens. If the colony is weak I feed below and introduce above. If the colony is strong I feed above and introduce below. I don't meddle with the brood-nest in either operation. I believe I am familiar with all the introducing-cages now in use. If I am not mistaken, they all require opening the brood-nest for introducing queens and removing the cages, which is the cause of losing so many queens in introducing. The cages are so small that only a part of the bees become familiar with the queen.



Dibble's queen-rearing appliances and cylindrical introducing cages. The "incubator" shows but one queen-cage. A dozen or more may be hung side by side.

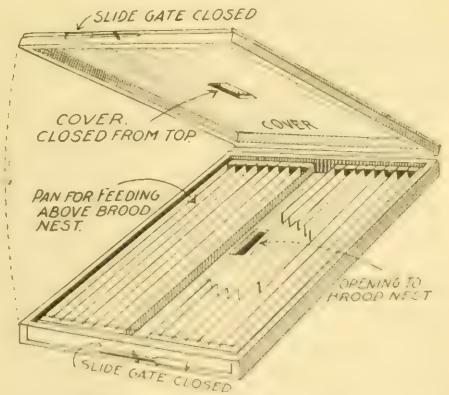
Studying out this problem of feeding and introducing queens, which I consider the two most essential things connected with successful beekeeping, I have united the two appliances in a very simple manner; and with me I am very successful in introducing queens, not losing one as yet. I perfected this pan and cage last August, and immediately introduced ten queens. All were laying in eight days—my first look at them after introducing. I am certain that this system will introduce more queens safely than any other.



Introducing a queen above the brood nest.

This pan is indestructible. It is manipulated easily, and places the feed right under the bees' noses. Second, the introducing-cage in connection with the pan introduces queens automatically without opening the brood-nest, either before or after introducing, and introduces the queen to all the bees instead of to only a few, as with other cages. For long confinement I use the long cage, which gives the queen full access to the whole length of the hive. The short and medium lengths I use automatically for strong and weaker colonies as required. The bees will liberate the queen in from 48 to 56 hours, if the proper amount of candy is used, and the queen won't leave the cage until the bees will accept her, if left alone. The hive should not be meddled with for a whole week.

By the use of this combined cover and bottom-board I keep all bees on the one stand, if desired, swarm or no swarm; make



The pan as used for feeding above the brood-nest.

nuclei, mate queens, supersede old queens without removing the bee-escape; queen-exclude, and other little tricks of the trade. I live in the city of Brooklyn, in the middle of a solid block of brick buildings; yet I have a fair-sized apiary in my back yard, and sometimes on the roof. I need room, and get up and down instead of sidewise; but I hear no complaints from my neighbors about my bees being a nuisance.

A QUEEN-REARING OUTFIT.

The idea of my queen-rearing outfit is old, yet the application is new. It can be used in connection with any strong colony. The cover described above is essential to success. I believe the very best of queens can be reared with this simple outfit if one understands the conditions under which good queens can be reared.

Brooklyn, N. Y.

KEEP THE QUEENS APART

BY W. T. CARY

I tried the Alexander method years ago when it was being generally described in the journals, and I think I thrashed out the principles involved pretty well from all sides to my satisfaction until I made a success of it with a little modification. The modifications, I think, were suggested from articles I read in GLEANINGS.

There are a number of reasons for losing queens; but the principal one seems to be the disposition of the bees. I had some fine gentle Italians, and some blacks and some hybrids, and I found a great deal of difference. I am satisfied that, if my bees had been all gentle Italians, like Alexander's, I should not have needed any modifications.

Use two queen-excluders instead of one, with a bee-space between them. If you have the wood-zinc or wood-and-wire excluder, simply lay one on top of the other. Then provide an independent entrance at the back end for the weak colony. The object of the double queen-excluder is to prevent the queens from getting their heads together and quarreling. If the queens get to quarreling the bees will surely take it up, and a fighting force will go up from below. The object of the back entrance is to enable the fielders from the weak colony to get out without going through the strong colony below where they might get killed and cause a general commotion.

If these manipulations are made at a time when the bees are in a good humor, and all quietly arranged, there will be very little danger, according to my experience. Why? Because the danger resides in the queens themselves or in the fielders, which every beeman knows is the fighting force. The queens cannot get close enough to quarrel, so the fielders in the weak colony will be afraid to go below when they can avoid it, and the fielders below will have no incentive to go above, as they do no housework, and their business leads them the other way and to the fields.

Scarcely a bee will pass through the excluders except a lot of young greenhorns that do not know any better than to wander about and take up with any queen or working force that comes handy. Such will be more than welcomed and coddled by the weak colony until they have a strong force that will fight for their adopted mother.

Wakenda, Mo.

BEES THAT PAID THE TAXES ON THE FARM

BY J. C. DOWNEY

The picture shows my apiary in winter quarters. Three years ago 9 colonies of this apiary produced enough honey to pay the taxes on my 120-acre farm, which is worth $150 per acre. In 1914 the 19 colonies produced just two pounds, or really one of the 19 did. We had two extremely dry summers in succession here—1913 and 1914.



Jerseyville, Ill., Feb. 8.

A SERVICEABLE BEE-HUNTING BOX

BY M. L. DODSON

When hunting for wild bees I use a box 4 x 6 x 3 inches, made out of light box boards. A piece of glass is cut to fit in sawcuts about ¼ inch below the top. The glass should project over one end of the box about an inch to make a handhold. Two blocks, each 2½ inches, are fastened on the bottom of the box, one at each end. This leaves a crack one inch wide and four long. A piece of window-screen four inches square is bent into a V shape and tacked on the ends of the blocks. Three or four holes are punched in the top with a leadpencil. This screen forms an escape leading into the box. Two pieces of old comb are put on the blocks and a little sugar syrup or diluted honey is poured on them and the box is ready for use.

Hold the box over a bee on a flower and it will soon crawl up the screen into the box. When you have caught a dozen or more, and they have started to feed on the bait, release them. They will fly directly home with their load, and every bee will bring back three or four more. When they get well started, close the glass cover, and every bee that returns will find its way up through the screen into the box.

When a sufficient number has been captured, start with them in the direction the bees have been coming from. Release a few bees occasionally and keep on following them till you come to the tree or house they are in.

They are sometimes hard to follow with the eye, as they will circle around several times before starting home. But if you can keep your eye on them till they fly directly away in a straight line you may be sure that is the right direction.

Another way to get them started is to leave the box in a sunny place for a few hours. If there are any bees in the vicinity they will soon find it, as the smell of the comb attracts them. When they have started, close the cover and proceed the same as though you had found them on flowers.

There are times during the summer when bees will not work on bait, as there is plenty of nectar in the field. The fall is usually the best time to hunt bees.

If you want to save the bees be sure to get them early enough so that they can get established in their new quarters before winter. In the spring, say about fruit bloom, is the best time to get them if you are after the bees.

Jennings, Kan.

CO-OPERATION IN NEW ZEALAND

BY E. G. WARD

The sixth annual conference of beekeepers was held in Wellington, June 2—4. The attendance was slightly smaller than last year, but there was plenty of enthusiasm. The season of 1914-'15 has been one of the worst on record. In the southern districts wet cold weather was the rule, and in Canterbury (middle portion of the Dominion) there were persistent strong northwest winds day and night for several weeks. Dry weather prevailed in the northern districts. One good crop only has been secured, and this from bees located in swampy country—from nothing to half a crop for the remainder.

The conference was opened by the Hon. R. H. Rhodes in the absence of the Premier, Hon. W. F. Massey. He gave figures showing that the industry is progressing on satisfactory lines, and promised careful consideration of any requests or suggestions which might be offered. The president, Mr. James Allan, appealed to those present to allow "brotherly kindness" to prevail; and it may be said here that the request found favor, for there was a marked absence of anything in the way of uncharitableness.

The annual report showed that the National had been instrumental in arranging for the supply of large quantities of honey for export to the United Kingdom. Negotiations were entered into with Major Norton, representing the Bristol and Dominion Producers' Association, for the supply of not less than 100 tons and not more than 500 tons of first-quality honey per annum for a term of three years at a satisfactory price. As the National Association is not a trading concern, arrangements were made with the New Zealand Co-operative Honey-producers' Association, Ltd., and a contract has been drawn up and signed by both parties.

The New Zealand *Beekeepers' Journal*, which has now attained its first anniversary of publication, was shown to be on a satisfactory basis, and had fully justified its

existence. It will be continued, and several experienced apiarists present promised assistance in writing articles.

The membership has slightly decreased; but two associations had affiliated—the Canterbury Beekeepers' Association and the South Canterbury Beekeepers' Association. There are still three associations unaffiliated, and an effort will be made to induce these to fall into line during the coming year.

Three sessions were held daily, and all were well attended. The incoming executive was instructed to take steps to establish a fund for defense purposes, to be kept separate from the general fund.

It was announced that amendments to the Apiaries Act would be gazetted shortly, and that the registration of apiaries would be included. This has been urged by several conferences, and the announcement was greeted with applause.

A number of valuable and instructive papers were read at different times, notably "The Food Value of Honey," by Mr. B. C. Aston, F. I. C., B. C. S.; "Co-operative Selling Propositions," by H. W. Gilling; "A Short Cut in the Treatment of Foul Brood," by C. J. Clayton.

The evening sessions were chiefly given over to discussions on various subjects connected with bee management. Of special interest was the discussion on "Can we Improve the Flora of our Districts to Provide Higher Qualities of Honey?" and "The Importance of the Honey-bee to the Fruit-growing Industry." Mr. W. E. Barker, Peel Forest, who is an authority on New Zealand flora, was particularly interesting in his remarks; and M. J. Rentoul, Cheviot, ran him very close for first place.

The conference resolved to recommend that the water content in honey, to comply with the provisions of the pure-food act, should be reduced from 26 per cent to 20 per cent. A number of samples of New Zealand honey had been analyzed, and were found to vary from 14 to 17 per cent.

Mr. F. A. Jacobson, government grader, gave a demonstration of grading honey for export. He explained the methods and how points were allotted.

In the second day of the conference a special general meeting of the shareholders in the New Zealand Co-operative Honey-producers' Association, Ltd., was held. The Dominion has been divided into seven districts for the purpose of dealing with local trade. Directors were elected to represent the various districts, and resolutions submitted provided power for a committee of three to be appointed to manage the company's affairs in each district where a bottling depot is established. It is hoped that, next season, depots will be an accomplished fact in two districts at least, in addition to one already running in Taranaki.

On the last day a presentation of a traveling-rug was made to Mr. Isaac Hopkins, and a trinket to Mrs. Hopkins as a small token of the esteem in which Mr. Hopkins is held. On account of the war, Mr. Hopkins' departure for England has been delayed indefinitely. In making the presentation, Mr. Allan, president, made feeling reference to the kindly feeling beekeepers have for Mr. Hopkins, who is known as the father of beekeeping in New Zealand. Mr. Hopkins thanked the donors very heartily, and related a number of anecdotes connected with beekeeping in the early days.

The following officers were elected for the coming year:

President, J. S. Cottrell; vice-president, M. J. Rentoul; North Island representatives, Mr. Askew and W. J. Nicholas; South Island representatives, Mr. W. E. Barker and W. B. Bray; general secretary, Mr. Stewart Wright.

St. Albans, Christchurch, N. Z.

NIGHT

BY GRACE ALLEN

In the mystical hush of the night I pause
And send my thoughts round the curve of the world;
Here there is silence and slumber around
And moonlight for miles unfurled.

This part of the world is asleep, so still
One scarcely remembers the throb of the lives
Of millions of men at rest in their homes
And millions of bees in their hives.

Then out past the night my thoughts sweep on
And pause where the dawn of a day has begun,
Where strong men waken and children spring up
And bees flash out in the sun.

Then swifter than light my thoughts race on
Where for thousands and thousands of miles it is day,
With traffic's roar and the rush of the town
And the bees in fields far away.

Still on and around my swift thoughts trail
Till they sink at last with a setting sun,
Where work-wearied men and homing bees
Seek rest, and the day is done.

"And ah! through it all," I think "through it all,
Is life and love and death and birth,
And a million of men and a million of bees
And the mystery of the earth!"

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Dogs wag their tails and folks smile when they express their pleasure; but whatever induced the bee to stand on its head and wiggle its wings?

Wants Definite Figures on Honey-selling

A matter that is often neglected in the bee-journals is the matter of putting up and wholesale selling of extracted honey. Let us have facts and figures.

Let's start with an amount of honey, say ten or twenty cases (1200 or 2400 lbs.). Suppose one buys at the market price direct from the producer. It is worth just as much if the producer is the bottler also. It is necessary to pay freight on honey, buy glassware from any of the supply catalogs, pay freight and breakage on glass, and to heat, strain, and clarify honey. Take into consideration the labor at a fair amount, and the depreciation of equipment. Next will be labels and cases if glass is ordered in crates, applying labels, cleaning glass, and filling glass. Now comes the selling part. Either advertising or soliciting orders will be demanded. Delivering or freight should also be taken into account.

Will some one be so kind as to give us information on all these lines?

It seems we are too much on production and not enough on uniform price and distribution.

NET-WEIGHT LAW O. K.

I observe that an effort is being made to have sections weighed in with the honey as a comparison to the wrapping around hams. Please take into consideration that the wrapping weighs perhaps 3 or 4 ounces to a ten or twelve pound ham, while the section weighs 1 ounce to every 10 or more ounces. I am in favor of the net-weight law as it stands, requiring the producer to mark the exact net weight on each section or other package. Give the consumer a right to know how much he is buying. It is only fair. We all like to know what and how much we are getting. If the producer can see no other way to get pay for that ounce of wood, let him ask a cent or two more for his honey per pound. They don't complain if you explain the matter.

Akron, N. Y. WILLIAM VOLLMER.

Cotton Cushions All Right, but the Bees were Too Old

From our experience with cotton cushions we find, first, they act as a heat-retainer; second, they are a moisture absorbent; third, they are clean and light in weight. Our combs are dry, and free from mildew where bees have died. The same dry condition is found in hives where bees are alive. We use an all-over deep casing, the same as Mr. Martine speaks of in the March 15th issue. In the month of January, when there was an outside temperature of 19 degrees, we found that we had a temperature of 72 degrees on top of the cushion.

But in spite of all these perfect conditions our loss has reached 50 per cent. Some of the old-timers may wonder why this is so. Which has the greater vitality—a horse 25 years old or one 5? Knowing what a poor year 1914 was, we have the story in a nutshell. Old bees to the extent of 60 per cent, when going into winter quarters, are beyond wintering.

Our queens stop laying in September. We started to feed up. We fed some 1000 or 1200 lbs. of syrup, but, no use. There was nothing doing. Our bees started brood-rearing the middle of January.

H. G. Quirin agrees with us as to the cause of the loss. He uses the tenement hive, or four-hive winter case.

Bellevue, O., April 10. N. B. QUERIN.

Net-weight Law in Florida

Florida beekeepers should notice that all packages sold or for sale must have net contents of same stated in weight, measure, or numerical count, conspicuously, legibly, and correctly, on the outside of the package. This law was passed by the Florida legislature in 1913.

Apopka, Fla. FRED E. MARDEN.

Tartar Emetic for Ants

I was troubled very much with ants in my honey department. I was advised to get ten cents' worth of tartar emetic and scatter it lightly in the honey-house or put it into small dishes, adding a little water. In three days not one ant was left.

Conesus, N. Y., Aug. 18. D. W. TRESCOTT.

Belligerent Bees

At one time I thought I had tame bees, but a recent swarm certainly disproved this idea. It settled on a Norway spruce tree about 30 feet aloft. I took a ladder, set it up, and fixed myself with bee-hat, gloves, etc., and thought I was in good shape.

I began sawing off the limb; then the fun commenced. The bees went after me by the hundreds, my gloves were covered with bees stinging for all they were worth, and my hands felt as though they had no gloves at all.

I thought of the Backlot Buzzer and took courage. I got the limb down, but it had few bees on it. Then they discovered my cotton socks. I never was a dancer, but I could have danced that time without

music. I did not get the queen, so they went on another spruce tree, and settled in three bunches near the ground. This time I took a wash-basket and a hoe, and knocked the largest bunch into the basket. I dumped them in front of the hive, but that time they found a way through my hat, and turned their artillery on my face.

I do not think I need to be stung by any bees to keep rheumatism away for some time. I wish some one would tell me why those bees were so cross. We had a storm that night, and a cold rain for several days.

Lucinda, Pa. J. B. VOGELBACHER.

Field Meeting at Pembroke, N. Y.

The field meeting and basket picnic held at J. N. DeMuth's apiary at Pembroke, N. Y., under the auspices of the Western New York Honey-producers' Association, was very well attended in spite of the rainy weather that prevailed in the forenoon. The fore part of the day was mostly getting acquainted and renewing old acquaintances, which always seems to be a jovial reunion when beekeepers meet.

Messrs. Vollmer and DeMuth removed several supers of honey from the hives, brushing off the bees with a brush of their own design, which certainly has the old hand method stripped outright.

Several colonies were examined and queens found. Some present favored three band and some the goldens. Mr. G. C. Greiner told of his victorious campaign with European foul brood four years ago. Mr. J. Roy Lincoln also related his experience along the same line. All seem to agree that a vigorous strain of Italians is needed to clean up the disease and hold it in check.

Mr. J. T. Rasch told of his method of rearing queens and building up nuclei—a line in which he specializes to quite an extent, as he usually sells bees every year. Mr. L. F. Wahl also exhibited some of his handiwork in the queen line, which was certainly fine. He also does quite a large honey business, putting up considerable in quarter-pint milk-bottles for the trade.

While this was a basket picnic, Mr. and Mrs. DeMuth deserve special credit for lunch and refreshments they served to those who were inconvenienced or forgot to bring some. Several members were added to the association. This field meeting is to be an annual feature.

Akron, N. Y. WM. F. VOLLMER.

The Cost of Bees and Drawn Combs

In some cases the answers to questions on bee values, page 419, do not seem to cover the points quite satisfactorily. Replying to 1 and 5 you say that in the spring there would not be 30 or 40 lbs. of honey in the combs. True; but I suggested that, as a business man, if you wintered bees on this amount of honey, and then sold them in the spring, you would naturally add the value of the food consumed—in this case about $6.00. You cannot have your pie and eat it too.

Of course I was in each case speaking of "things as they are" in British Columbia. Beekeepers here have not yet accumulated large surplus stocks of brood-frames, and there is always the risk of foul brood in disused frames, which, generally, come from hives whose former inmates have died.

Somewhere (in the A B C, I think) I have seen a certain beekeeper's success attributed largely to the fact that he possessed some 2000 surplus brood-combs. Now, at the low price of 25 or 35 cents (your figures) each, one might easily procure a like supply, and so swell the ranks of the successful ones, but that is not feasible here.

The market price of beeswax is admittedly low, and I understand that the amount of honey consumed by the bees, in proportion to the wax secreted, is not definitely known (1905 edition of the A B C, glossary, p. 407, says, "The production of each pound of wax requires 10 to 20 lbs. of honey"); but we will say it is 10 to 1—that is, on our values of honey at 17½ to 20 cts., wax should be worth over $2.00 per lb., especially in view of the time consumed by the bees in the cluster. This brings me to my point—viz., I can buy foundation at about 70 cts. per lb., but I cannot get the extra wax added to it in the drawing-out and building process for less than $2.00 per lb.; and I think that this fact goes a long way to prove my contention, that 67 cts. is not a high value to put on a good frame of worker comb. They cannot be manufactured by machinery, and we do not care to try importing them for fear of disease, which we are especially anxious to keep out (or clear out) of British Columbia, hence it looks like a corner in combs in favor of the happy possessor.

As a matter of fact I value my combs at $1.00 each. They are ready for any emergency, and would be hard to replace. Let me whisper here that the honey crop in this district is a practical failure; and it was for only a very short time, during fruit-bloom, that the bees worked at drawing out foundation.

I know of folks who imported bees by weight, put them on foundation, and lost them by starvation for this very reason.

Like so many problems in bee culture this seems to depend largely on locality. Yours may be an exceptionally difficult one.

North Vancouver, B. C. FRED E. WHITE.

Old Story to Him

The method of swarm control proposed by Mr. Chalon Fowls, page 574, July 15, is practically the same plan I have been following for the past two years without knowing that Mr. Fowls or any one else had been practicing it.

The only difference is that I do not remove the top super of brood unless I want increase. Furthermore, I work the bees on this plan even before they start queen-cells. I seldom have a swarm, but secure good crops of honey. I keep the hives raised up on small blocks. This plan works well with such prolific breeders as Carniolans and Caucasians.

The "Long-idea" hive appeals to me for the following reasons: There are no supers or queen-excluding boards to remove when one desires to examine the brood-nest or requeen. It is very easy to transfer frames of brood from side frames or to side frames or supers. One can handle many more Long-idea hives in a day than the present style, and give better attention to each. There are no supers to store away nor carry to out-apiaries. I expect to test one the coming season before I purchase a further stock of the present style.

Andalusia, Pa. H. W. FULMER.

An Experiment to Get Rid of Laying Workers

Having found a hive containing laying workers I first introduced a frame containing eggs and brood to see if queen-cells would be started; and on finding the case hopeless I referred to the A B C and X Y Z of Bee Culture without getting much encouragement from it. It occurred to me that the laying workers probably develop the instincts of a laying queen, and so would tend to remain in the hive on the combs and not go abroad seeking nectar as do their fellows. Reasoning thus, I moved the hive to an out-of-the-way spot with its entrance facing in a new direction, and there shook all the bees off the combs into the hive. I then removed all the combs except one containing drone brood which I left in

the hive to act as a bait for the laying workers. I next placed a new hive on the old stand, giving it some frames with eggs and brood to see if the field bees on returning would start queen-cells. I was much pleased to find the plan successful and queen-cells started, and so gave a ripe queen-cell which duly hatched, and the queen was accepted.

To return to the old hive with its single frame, I found there sufficient bees to cover only this one frame, and to save these I shook them up with the bees of another hive in the apiary with which they united quietly and peaceably. This latter plan may be dangerous, as the laying workers might kill the queen in their new quarters; but I felt the chances were against it, which proved to be the case. The whole plan was extremely simple, and proved very effective; and I hope if any of your readers try it they may also report success.

C. HOGAN, Sec. Annapolis Valley Branch Maritime Beekeepers' Association.
Port Williams, Nova Scotia.

The Beekeeper's Opportunity

With a bountiful harvest, and the market anything but favorable on account of the European war, beekeepers have an excellent opportunity to try advertising as a means of disposing of their honey. The consumers would use more honey than they do at present if the many excellent points of this article of diet were kept more constantly before them. Think of the "slump" in breakfast food sales if the manufacturers were to cease their advertising for a month!

Mr. W. W. Lourance, of Centerville, Texas, has for several years past sold his honey by inserting the following small advertisement in the classified columns of a farm paper which circulates largely among the Texas cotton, fruit, and truck growers:

Honey that will please you at right prices. Bulk comb and extracted; one-gallon pails, five-gallon cans, freight paid.
HONEYDALE APIARIES, Box 43, Centerville, Tex.

"We have been blessed with a bountiful harvest this season," says Mr. Lourance. "And I find this little advertisement one of the best means in securing a market for my honey."

The newspaper offers the man with honey to sell a medium by which he can multiply his possible customers from a few hundred into many thousands. Too long have we neglected to use this powerful means in helping to secure a market for our products.

Beeville, Texas. MAURICE FLOYD.

Why Robbers should Not be Trapped

In GLEANINGS for October 15, last year, I noticed an article bearing the title "Trapping Robbers Not Recommended;" and the answer given by Chas. H. Cargo as follows: "Because it puts the bees in an inferior hive while killing out another and stronger hive."

If it is one of his own colonies that is doing the robbing, then he does not lose much by letting them rob; but if it is some other beekeeper's bees that are doing the robbing, then he loses all but a little comb that may remain in the hive after the robbing. Robbing bothers but little the beekeeper who is on his job.

I would not recommend trapping robbers, because it may lead to the trapping of not only robbers but bees that are in search of food for the purpose of building up new colonies at some other beekeeper's expense or loss.

I took an empty hive, put some honey in it, and set the hive outdoors where my neighbor's bees could get at it. By leaving the entrance open for twenty-four hours or longer, thousands of his bees found the honey and were at work carrying it away. But I soon stopped this by putting three robber-traps (Porter bee-escapes) into the entrance of the hive. In a few hours I had a hive full of trapped bees. Now, all that I had to do was to introduce a queen, then I would have a new colony at my neighbor's expense; but, no—I let them go. It was an experiment that I was trying, and I found that it worked. But there may be people who would trap bees for the purpose mentioned above if they only knew how. So it would not be wise to recommend trapping robbers.

Meadville, Pa. A. B. MCGUIRE.

Fall Honey-plants

Oakland County, Michigan, should have been named Lake County, as there are 283 named lakes and 100 that are not named. Around these lakes are acres and acres of wild flowers, such as goldenrod, wild asters, boneset, and a plant that resembles boneset very much, and from which the bees gather large quantities of honey of a light-amber color. There is a plant that has a small white flower, and blooms after the frost kills the others. I have seen bees on this plant up to the first of November, and have counted seven bees on a small twig. There are hundreds of flowers on a single plant. Then we have a plant that grows 5 to 7 feet high that has a blue flower on which the bees work in large quantities.

There are 50 different varieties of goldenrod alone, besides different varieties of asters, boneset, spearweed, buckwheat, and several other kinds of fall flowers that grow around these lakes in great abundance. The goldenrod is just coming into bloom now; and if the frost holds off, and we have warm weather during the next two weeks, thousands of acres can be seen.

I have taken 30 lbs. per colony of extracted honey from these fall honey-plants, after leaving 25 to 30 lbs. to winter on. The honey is very thick. If left on the hives until it is all capped over, it is almost impossible to extract it. In the northern part of the state there are thousands of acres of waste land—yes, hundreds of thousands of acres—that was timbered over and that have gone back to the state, as the owners would not pay the taxes on it. The waste land has grown up to wild red raspberries and other wild flowers.

The lamented W. Z. Hutchinson took 15 colonies up to this waste land and increased them to 150, and wintered the 150, then got a large crop of honey, and sold it at 10 cents per pound.

Rochester, Mich., Aug. 28. J. M. KINZIE.

Robbing

Occurred in late September, when the days, as I remember, were shading, growing cooler, with the frost not far away. I enrolled my hives in number 'fore I left them to their slumber, and prepared them for the coming of their resurrection day.

Heard a wicked little bee with her hum exultantlec had been tippling in the barroom of an undefended hive. Somehow so it chanced as into hives I glanced, I was tackled, worsted, routed, scarcely saved myself alive.

Garbed with yards and yards of netting, veil and smoker not forgetting, forth I beat it to the riot like a Yaqui to the fight. First the entrance neatly covered where the robbing I discovered; left them shrouded with the netting till the coming of the night.

When the evening lamps were lit I could feel that all was fit. My forty hives I'd cellared, and was left in peace to sit.

Fennville, Mich EMILY JACKSON.

A. I. Root

OUR HOMES

Editor

Thy kingdom come; thy will be done in earth as it is done in heaven.—MATTHEW 6:10.

There shall in no wise enter into it anything that defileth, neither whatsoever worketh abomination, or maketh a lie.—REV. 21:27.

God's kingdom is coming. You may remember that I have used this phrase frequently of late; and day by day I see new evidences that God's kingdom *is* coming, here on earth, in this teeming world of ours. It is coming to the state of Ohio; and the time of its coming depends on the people, on humanity. It depends on *you* and *me*.

I have just returned from a visit to the Ohio State Fair. I think it must be ten years or more since I looked over the Ohio State Fair; and I was astonished and happily surprised to see the movement that is going on toward God's kingdom.* Before I tell you what I saw let me explain a little.

The liquor party is becoming alarmed. A year ago they started what they called "home rule" here in Ohio, to hold back prohibition. Thousands of people were deceived and deluded about the so-called home rule. Well, it worked so well they have just now, before the coming contest, started what they call "The Ohio Temperance Union." That sounds good, does it not, friends? Well, their first move was to go down to Greene County and put up a tent or a booth on the county fairgrounds to distribute their "Ohio Temperance Union literature." The managers of the fair, however, when they caught sight of that lot of temperance(?) literature, called a halt; and their tent, bag, and baggage were very soon ruled off the grounds. They made a big fuss, called the managers fanatics and various other names; but that did not help their cause. Well, the papers tell us they made a venture at another county fair and with the same result; and then this Ohio Temperance Union had the audacity to apply for space at the Ohio State Fair; but when they produced some of their literature the managers of the fair promptly declared that no such temperance literature could be placed on the grounds of the Ohio State Fair. The liquor men put up a big remonstrance, of course; but the managers were "hard-hearted."

Well, when I approached the gate at the State Fair on the last day of August, the most conspicuous object was a good-sized building outside of the fairgrounds, just as near the entrance as they could get, decorated with the Ohio Temperance Union literature. While there were thousands upon thousands of people rushing through the gate, I did not see anybody gathering around this great display of print. On the morning of Sept. 1, when I came up to the honey exhibit in the Exposition Station Building one of the young beekeepers placed in my hand a clipping from a Columbus morning paper. I am sorry he did not leave any evidence as to the name of the periodical. Here is the clipping:

REMOVAL OF 7 MEMBERS OF AGRICULTURAL BOARD IS ASKED; OHIO TEMPERANCE UNION CHARGES THEM WITH HAVING FAVORED PROHIBITIONISTS.

Removal, not of the entire ten members of the State Board of Agriculture, but of seven members, President John Begg, C. A. Branson, N. L. Bunnell, J. W. Kirgan, D. D. Snider, T. B. West, and K. D. Williamson, was demanded yesterday of Governor Willis by Harry R. Probasco and W. L. Casady, managers of the Ohio Temperance Union, because the union had been denied a 12-foot space on the fairgrounds on which to set up a tent and distribute arguments against prohibition.

The managers ask removal if the governor does not force the board to recede from its action or does not obtain the resignations of the seven. Though it is not specifically stated in the demand, it is understood the seven voted against the concession Monday when nine members were present.

The managers charge discrimination in favor of the Woman's Christian Temperance Union, which has a booth on the grounds and is distributing prohibition arguments.

Did you ever see such a display of what is generally called cheek? The idea! "Discrimination" indeed, in favor of the W. C. T. U.!*

Some years ago when traveling on a railway where I was pretty well acquainted, I noticed a change of conductors. When I

* When I approached the gate to the fairground a great number of men and boys pushed out to me various leaflets, advertisements, etc. At first I commenced to shake my head; but finally I decided to see what they had for sale, and crammed a great lot of them in my pockets. When I got time I noticed they were advertisements of medicine to cure rheumatism, tuberculosis, cancer, headache, etc. They "stood outside the gate" because the management did not allow anything of that kind on the ground. As soon as I got inside I saw men with baskets of waste paper going around with a sharp stick and spearing up paper bags and trash of all sorts as fast as the busy crowd dropped them. I commenced to pare a nice apple; but almost as soon as the peeling reached the ground a couple of alert boys with baskets caught up the peeling. It was so all over the fairground. No trash or untidiness was permitted to accumulate. These are trifling matters; but even "straws," you know, "show which way the wind blows."

* To-day, Sept. 8, we find the following in the Cleveland *Plain Dealer:*

AVIATORS TO AID WETS.

The Ohio Temperance Union, which is fighting the prohibitory amendment, being denied space inside the fairgrounds to distribute literature, seeks to employ aviators to fly about the grounds and drop quantities of literature on the heads of the crowd.

The Anti-saloon League will ask the courts to stop that procedure.

inquired what had become of my former friend the reply was, "He was dropped because he was color-blind."

"*Color-blind?*" said I. "What do you mean by *color-blind?*"

I could readily understand why an engineer should be dismissed on account of being color-blind; but I could not see how it applied to a conductor.

"Why, his color-blindness was like this. He got so he could not discover any difference between the color of his own money and the money belonging to the company."

Now, while we shall have to admit, perhaps, that a good many of our Ohio people were color-blind a year ago in regard to "home rule," for instance, I doubt if there were many in the great throngs on the grounds of the Ohio State Fair this year who failed to see a difference in the color of the literature passed out by the Ohio Temperance Union and the literature used freely in the building and all over the fairground by the W. C. T. U. By the way, let me remark that in times past the W. C. T. U. has been laughed at and ridiculed; but just now, thank the Lord, they are "coming into their own" here in Ohio. Their presence and their good work were manifest all over the fairground, inside the buildings and out, in the way of resting-places for women, an immense dining-hall entirely under the management of the W. C. T. U., etc.; and very likely the good women of Ohio inaugurated the scheme of gathering up the rubbish as mentioned in the fore part of this article.

I am not going to tell you all I saw nor even a part of what I saw in that great accumulation of the best things that Ohio can produce. I am going to confine my remarks chiefly, at least just now, to what is called the "Education Building" of the State of Ohio. Near the entrance to this great edifice we see "Safety First" given a prominent place. In fact, "Safety First" seemed to be the most prominent feature in the education of our boys and girls as well as men and women. Now, what do you suppose the state of Ohio recognizes as of the greatest importance in this matter of safety first to conserve human life and limb? In my Home talk in our last issue I gave a list of the things that the Pennsylvania Railroad Co. is doing and has been doing for years past to make *safety first* the great slogan of their thousands of miles of railway. Well, I thanked God again and again that the *factories* of Ohio are recognizing that safety first demands the entire abolition and prohibition of intoxicants. One of the first things that caught my eye was a very pretty motto in large plain letters: "If you would not marry a girl who drinks, why should you expect a girl to marry a man who drinks?"

May be, friends, you do not see what a tremendous bearing safety first cuts in the above. Look at that picture in the last GLEANINGS of the girl amid the flowers, and read what is written under it. Well, there is one whole department devoted to infant mortality. Another motto over this reads, "Nine babies die from overfeeding where one dies from lack of nourishment." Over another department we read, "Eighty thousand accidents in Ohio during 1914 cost the employers of factories over three millions of dollars. Why not help to reduce this appalling record at least a half?" On another very pretty card we read: "Workmen who are not careful from 5 P. M. to 7 P. M. will not likely be careful from 7 A. M. to 5 P. M." The inference is that the man who thinks he can visit saloons after working hours, and that it is nobody's business, is just now finding out he is mistaken.

The United States Steel Corporation had a magnificent display. There was no end of photographs explaining how accidents happen that proved injurious or fatal. As an illustration:

Where workmen are working steel with a cold chisel, chips of steel often get into the eye. This has happened frequently in our own machine-shop. Well, the management now furnishes stout glass goggles with placards requesting employees to use them whenever the eyes are in danger, and the broken spectacles are placed in plain sight, showing where the chipping fractured the glass instead of putting out an eye. I remarked to the bright man in charge that our institution was employing workmen, and asked him how they managed to keep intoxicants away from their help. His reply was, as nearly as I can recollect, as follows:

"Mr. Root, we are just now getting material to put up a stout barbed-wire fence clear around our premises. Workmen are to be admitted through a gate; and after they are all in, the gate is locked. A man cannot get out without giving a reason for it until the gate is opened when the whistle blows. If saloons are planted in the immediate vicinity of our premises we will establish a watch; and when any one of our workmen goes into one of these saloons he is promptly dismissed."

You see a saloon would be unlikely to locate in such a place if they knew of the regulations beforehand; and if they did have the audacity to locate thus the mana-

ger would probably soon go away on account of a lack of patronage.

I hold in my hand a sort of magazine of toward 100 pages. It is the Safety Bulletin of the Ohio Safety Commission. In one place we read:

> Ohio's opportunity to conserve human life and limb.
>
> That prevention of accidents is of even greater importance than equitable compensation to injured workers.
>
> The value of men, women, and children in our country is worth in money more than twice as much as are our industries, railroads, land, buildings, and improvements. No monetary value can be placed on the health and happiness of humanity.

The whole periodical is devoted to safety first. On page 74 we read:

> "If past experiences enable us to judge, more than ten thousand workers of the United States who are alive and well to-day will be *dead one year from date*, just because they failed to heed the most simple and obvious precautions of 'Safety First.'"

For copies of this magazine address Victor T. Noonan, Director of Safety, Industrial Commission of Ohio, Columbus, O.

Now, all of these things admonish me that God's kingdom is coming. Not only the state of Ohio, but the whole wide world, seems to be waking up and recognizing as it has never done before what intemperance has been doing for ages past in the way of preventing the forward movement of the gospel of Safety First. Do you want to know what will be the state of affairs in that happy time when God's kingdom shall come in earth as it is in heaven? Well, I have at present only a dim vision of what this earth will be; but I get a glimpse occasionally of good men and women who really do love their neighbors as themselves—who really do love the boys and girls of coming generations as they love their own children and grandchildren, who have been able to follow the gospel of Christ Jesus and its injunctions to love *even our enemies*—the enemies they are compelled to fight—the enemies of all righteousness; and we are just now working to make Ohio dry without any fight or ill will toward the brewers, the saloon-keepers, the liquor-dealers, and all who are engaged in that unholy traffic. We love them in spite of their greedy, selfish, unhappy nature, and we long to see them engaged in some pursuit where they will be better men and better women. We long to see them engage in some pursuit where they can honestly ask God's blessing on the goods they send out—in some pursuit where they will not feel that they themselves, their wives and their children, are disgraced before all good men and women, when the nature of their occupation becomes known.

Now in regard to the condition of affairs when God's kingdom shall have come in earth as it is in heaven, I cannot tell very much about it except from the many glimpses that we get through God's holy word.

As I think it over after my brief visit I have been wondering if the time is not near at hand when not only our state fairground but the fairground of every fair in Ohio shall come up to the standard as we have it in Holy Writ.

"There shall in no wise enter into it anything that defileth, neither whatsoever worketh abomination, or maketh a lie."

I confess it may be a pretty big jolt for at least some of our county fairs, and even state fairs, but evidence seems to be growing all about us that the time is approaching when God's kingdom shall come to even this earth of ours.

APPLE JUICE "WHILE YOU WAIT."

The principal beverage on the State Fairground was so-called apple juice squeezed out of the apples while we stood by. For instance, I went up to a refreshment stand and picked up a nice apple and handed out some change. The proprietor instantly said:

"No, no! those apples are not for sale."

"Not for sale?" said I in surprise.

"No, we want them for cider; and with our big trade it looks as if we would not have enough any way."

"Well, if you do not sell the apples, will you sell me some of the juice out of them?"

"Oh, yes! we will sell you the juice—that is our business."

It was just about my supper time, and my supper, as you may recall, has been lately mostly of apples; and I was wondering if the juice of apples would not do just about as well as the apple itself. Of course he put several more apples with it, and gave me so big a glass of cider that I was afraid I should not be able to drink it all, especially as it was ice-cold. So I sipped a little slowly, for it was a warm day, and I am afraid of ice-cold drinks at such a time. I am glad to say that the apple juice seemed to answer just as well as apples. Had I been at home I would have had a little bit of cheese with the cider; but I got along very well with just the apple juice. Now, there is certainly no objection to giving a man, woman, or child all the apple juice (perhaps I should say at proper hours) that they care for. But the use of cider has been discouraged of recent years, because there is so much danger of its being kept until it is fermented, or slightly so; and *hard* cider in times past has made about as much trouble as beer—may be more.

There were many stands for the cider while you waited, all over the grounds. They had a fashion of pouring it quite a distance so as to make a foam on the top of the glass so as to look like a glass of beer or a glass of fermented cider. But I think the authorities looked after things so that no cider was on sale anywhere that was the least bit worked. It was just plain apple juice, and made a very nice delicious drink, made of apples neither too sweet nor too sour. All the stands used a small cider-mill worked by hand; and it would be very nice to have such a machine—a very little one—in the home if it were not for the danger of keeping the cider until it contains alcohol, and if public sentiment were worked up to such a point that our fathers and mothers could look out and prevent a little cider-mill proving to be a thing of danger in the home.

JOHN L. SULLIVAN, THE CHAMPION PRIZE-FIGHTER, TALKING ON TEMPERANCE.

Strange things are happening nowadays, and, thank the Lord, some of the happenings are "happy surprises." In a recent *Rural New-Yorker* the Hope Farm Man tells of attending a temperance lecture at Ocean Grove, N. J., where Sullivan was the speaker. I wish our readers could all read that Hope Farm notes. We have room for only two brief extracts.

Here was a man who in the palmy days of his great power spent at least half a million dollars for liquor in the meanest and most debasing way, and then finally braced up and "cut it out," as he expressed it. Surely, we have here an expert whose opinion ought to be worth something. . . . . He said the only safe way to fight "booze" is to jump out of the ring and run for your life. He said, and he ought to know, that the man who says, "I can take a drink when I want to and quit when I want to" is a fool and a liar! I was impressed with what Mr. Sullivan said about the growth of prohibition sentiment everywhere. I had to rub my eyes as I recalled that railroad scene of 30 years ago, and now saw this white-haired, earnest man waving that great hand with something of prophecy as he said that within a few years the sentiment against the useless folly of "booze" would be so great that decent men will not stand for it.

From a recent number of the Cleveland *Plain Dealer* we clip the following:

MORE ABOUT KANSAS.

In a recent number of the *Plain Dealer* Paul S. Conway, of Kansas City, is reported as having stated in an address to the "wets" of Cleveland that last year over 90,000 gallons of whisky was drunk in Topeka, Kan., that the saloons of that city were wide open, and that more liquor was sold in prohibition towns and cities than in cities where open saloons exist.

I have spent a number of months each year for several years in Topeka, and know, as every person who is acquainted with the city knows, that there are no open saloons in Topeka; that "the city is as tight as a drum," to use the language of the present mayor of Topeka, and that the prohibition law is as well enforced there as is the law against burglary or larceny.

In further reply to Mr. Conway permit me to quote from the speech of Arthur Capper, the governor of Kansas, made on Kansas day at the Panama-Pacific exposition in San Francisco. Mr. Capper is the owner of the Topeka *Daily Capital* and other publications having a statewide circulation, and has spent his entire life of fifty years in that state. I quote from his speech as follows: "Kansas for thirty-five years has not had a legalized saloon or brewery, and now has eighty-eight city and county jails that are empty, forty-seven poorfarms and almshouses that are unoccupied; twenty-eight counties in which the criminal courts have not had a criminal prosecution in more than a year; there are more than half a million boys and girls in the state who never saw an open saloon; the state has the lowest death rate in the United States, only seven to the thousand, a percentage constantly decreasing, although we have more motor cars in proportion to the population than any other state. Kansas has the largest per capita of wealth, almost $2500 for each man, woman, and child within its borders, while we have $205,000,000 of surplus wealth piled in our banks and savings institutions. Kansas was the first state to declare unanimously through its legislature, its state officials, and its entire delegation in congress for nation-wide prohibition."

No attempt has been made, and no successful attempt *can* be made to refute these and other statistics of like import given by the governor before a large audience, including several hundred prominent jay-hawkers who were present on that occasion.

Ashtabula, O. NORRIS L. GAGE.

THE DOPE HABIT.

We clip the following from the Official Bulletin of the Ohio Agricultural Commission for July:

THE DRUG HABIT.

Ohio, as well as other states, has an army of human beings who are more or less slaves to the "drug habit." The Division of Dairy and Food Inspection, under Mr. Strode, has charge of the enforcement of stringent laws recently enacted. The "drug" is now hard to get. Yet some folks who want to be regarded as respectable and honest will, for the greed of a dollar, aid and abet these drug victims to get the drug in defiance of law.

This curse has cast a shadow across Ohio and the nation. The cities, especially, have a large percentage of the cases and victims. In many cities the prisons are filled with these unfortunates. The state and nation ought to have started twenty years ago to wipe out this vice.

Mothers will appeal to officers of the Agricultural Commission for permission to purchase "drugs" when they find they cannot get them as they formerly did. They threaten to destroy themselves. They say they want to live for their children, but cannot live unless they can have their "drug."

One half of the people do not know how the other half lives.

The above is all very good; but does it include cigarettes as well as morphine, cocaine, etc.? May God help us in our efforts to keep temptation far away from the path our children are treading. "Lead us not into temptation," etc.

HIGH-PRESSURE GARDENING

TRAMPS: WHAT SHALL WE DO WITH THEM? ALSO SOMETHING ABOUT SOWING SWEET CLOVER BETWEEN THE HILLS OF MATURING CORN.

We clip the following from the Cleveland *Plain Dealer*:

One who gives a tramp a "hand-out" at the back door is doing himself, the tramp, and the community an injustice. A city which, rightly or wrongly, gains the reputation of being composed largely of these back door philanthropists suffers in the long run, for hoboes are persistent advertisers. They spread far and wide the glory of any city which shows special consideration of their kind.

I think there must be considerable truth in the above, because I have noticed tramps passing by our place and stopping at some of the humbler homes on the outskirts of our town. Very likely it is understood among the craft that our establishment offers *work*, but not cold victuals. But I am glad to say that I have had one experience that I am glad to mention. Monday morning early a fellow just twenty years old came to the lumber-yard and asked for work. He said he had not had a bite all day Sunday, and had had no breakfast that day. As it usually happens at this season of the year, our business is slacking up, and the foreman of the yard told him he did not know how we could use any more help just then. But he gave him a bite out of his own dinner-pail; and although I remembered former experiences I gave him a hoe and set him at work in the cornfield. Well, it was one of my "happy surprises" to see him get down and do about as much work in an hour as the usual run of help will do in two hours. The field had been cultivated, but ragweeds had started up in and around the hills. Of course, there were not weeds in every hill; but he just flew, as it seemed, from one weedy hill to the next one—got down on his hands and knees, got out every weed, smoothed the dirt back with a dextrous flourish of his fingers, and then really jumped and ran to the next weedy hill. When I saw how he was "panning out" I told Mrs. Root about it and she hurried up a pretty good lunch of nourishing food, remarking at the same time that he certainly could not keep up at that "gait" for the whole day. But, to my surprise and astonishment, he did; and just before the whistle blew (with the help of another good man) the cornfield was finished. One reason why I was anxious about it was that the corn had been cultivated for the last time, and we were in a hurry to get in some sweet-clover seed. This was put in with a drill (between the rows) with a weeder tool to work the seed into the soil after the seed had been dropped on the surface. Although our business is slacking up at this season of the year (July 20), I told Mrs. Root I was going to see that that boy had a job. By the way, he seems to be a foreigner, and speaks our language very imperfectly, and I have before noticed that some of these foreigners, before they have learned the Yankee trick of "soldiering," are a refreshing example of what a man can do in the way of getting along with his work if he is really anxious to *have* a *job*.

SOWING SWEET CLOVER BETWEEN ROWS OF CORN AT THE LAST CULTIVATION.

It is now August 20, just one month since the sweet-clover seed was sown, and it is up and growing as only sweet clover can grow. We put on about 15 lbs. per acre, and I should judge there was twice the quantity needed, and perhaps more than that. As the seed was put through the new scarifying machine, probably almost every seed germinated. The plants are now six inches tall. The abundant rains seem to have just suited the sweet clover. The corn, too, has made a most astonishing growth. Some of the great ears are lopping over already, and it looks very much just now as if sweet clover does not hurt the cornfield as do ragweeds and other foul weeds. Before the sweet clover gets up so as to take the fertility and moisture from the corn, the corn will probably be beyond injury from the clover. Of course, the abundant rains probably have had much to do with the tremendous growth of both corn and clover.

Still later.—It is now Sept. 10. The clover is a foot high, and much of the corn would do to cut. By selecting ears of early maturity for several years I have a strain of early maturity; and I believe we have about the best *whole field* of corn I saw on my trip to Columbus and back.

SWEET CLOVER FOR FEEDING STOCK; A COMPARISON WITH CORN FODDER WHEN FED TO MILCH COWS.

I notice quite a number of our agricultural periodicals are rather slow to give sweet clover credit, for some of them go so far as to say that farm stock will not eat it except when they can get nothing else, etc. Below is something which we clip from the *Beekeepers' Review* for Septem-

ber; and inasmuch as quite a number of similar reports are now coming to the front it seems fit that some of these periodicals should keep a little better posted and up to date.

I have had some personal experience with sweet clover this fall, and I now know that stock will eat and relish it. One of my neighbors told me that his horse would now leave a mess of oats any time for sweet clover, although at first refusing it. This neighbor is a feed-dealer, so naturally his horse would be well fed. Our Jersey cow at first refused it, but gradually began to eat it; and when I was about out of it I found she preferred it to corn fodder; and I also discovered that when fed corn fodder after being on sweet-clover hay she dropped about three quarts per day off her milk. Just think what this means—6 pounds per day for 300 days, the average milking period—equals 1800 pounds of milk at 6 cents per quart, $108 more per year per cow; or at $1.75 per 100, which is what farmers get in shipping to the city, it would amount to $63.00; and this astonishing amount is just the difference in favor of sweet-clover hay over corn fodder and other feeds, grains being the same, and sweet-clover hay being the equal, ton for ton, of wheat bran in feeding value according to U. S. Department of Agriculture analysis; and while growing sweet clover we are greatly enriching our land.

Milford, Mich. EARL F. TOWNSEND.

SQUASH-BUGS, AND BLACK-KNOT ON CHERRY AND PLUM TREES.

Mr. Root:—I see that you have quite a lot to say about squash-bugs. I have something that will drive all the squash-bugs out of Ohio in one season. Take pine sawdust when your plants just get out of the ground, and put it 1½ inches deep under the plants; then when they are six or eight inches high put on some more sawdust. This is for squash, cucumbers, pumpkins, and watermelons. I have another recipe for black-knot on tame cherry and plum trees. Take the soot from your chimneys and put one quart around each tree at the ground. That destroys the germ that causes black-knot, and it will never fail.

I am an orchardist, and the two recipes are free, so please pass them along.

La Grange, Me., Nov. 7. E. A. DAY.

I presume that in the above the odor of the pine sawdust is what repels the bugs. I find they are in the habit of boring down around the stalk and roots of the vines. In fact, they crawl down in the dirt, and hide. Very likely this pine sawdust, with its strong odor of turpentine, would be sufficient to repel them. If I remember right, some other writer has recommended kerosene worked into the sawdust, being careful, of course, not to get it so strong as to kill the vines.

HAND CULTIVATORS, STRIPED BUGS.

I am nearly 70 years old, but I am a good gardener. I know how to make stuff grow by working the ground often and using shallow cultivation. I have about two-thirds of an acre in my garden, and all tended by hand, with my wheel plow and hoe. I use the Excelsior double wheel, about 14 inches between wheels. I use two plows or two weeders, as I wish. One can do more than double the work with them than with a single wheel, and no harder work. My garden is fine, and full of stuff—one of the finest gardens in all this county. The dasheen is growing finely—nearly 2 feet high. The rainbow corn is nearly 2 feet high, and is showing up finely.

I had a hard fight with the yellow striped cucumber bugs. I had to replant. I finally got the upper hand of them. I had (like you) to do a little Sunday work with them, but under compulsion. I do not think I sinned. If I had let the plants go until Monday they would have been about all killed. Now I have some nice vines. There were more bugs this season than I ever saw before in one season.

We (that means my better half and I) do enjoy your Home department. I am so glad temperance is advancing so fast.

Delta, Ohio. T. W. CONNELL.

HEALTH NOTES

STILL ANOTHER IMITATION OF ELECTROPOISE.

It is really a shame and disgrace to humanity to think that a senseless toy that has no more virtue than a horseshoe nailed over the door should not only induce thousands to invest their hard earnings, but should be *imitated* again and again to "pick the pockets" of the unwary. Just now we have a circular before us that reads as follows:

ATTENTION! IT TREATS DISEASE WITH OXYGEN

You may now borrow an oxybon, use it thirty days, and treat your ailment in your own home. This may seem remarkable to you, but, nevertheless, it is a fact. If you have failed to find relief from any other method of treatment, then all we ask is that you give us an opportunity to demonstrate the worth of our invention by trying it for 30 days. If you are suffering with any ailment, don't hesitate. Write us now. It may be the turning-point in your life from sickness to health. It treats disease with oxygen. No medicine, no belt, no battery, no electricity!

Some of you may wonder how it is that they get money by sending their traps out on trial. The explanation is this; and it applies to a great part of the remedies found in the drugstore. After reading their printed matter, and especially testimonials, many people (and I might also say most people) get the impression that there really must be some wonderful invention or discovery about the thing; and under the influence of the imagination, and nothing else, they hand over their good money. While the original electropoise had only one wire, this thing has two. You drop it into some ice-cold water. Then you clasp a wire to each ankle, and lie down and take a rest. Is it not a little funny that people do not catch on to the idea that lying down and

taking a rest when fatigued and worn out will do a lot of good *without* any electropoise?

WHISKY AND BRANDY NOT MEDICINES.

The following, from the *Ohio Messenger* for September, is important:

PHARMACOPOEIA DROPS LIQUOR.

The National Pharmacopoeia Committee, composed of fifty-one of the leading physicians of the country, has cut whisky and brandy from the new edition of the United States Pharmacopoeia.

This means that whisky and brandy have been declared officially to be neither drug nor medicine. The new edition of the pharmacopoeia will be issued about January 1, 1916, and after that time brandy and whisky cannot legally be sold by druggists as medicine.

It will then be necessary for the druggist to meet the local requirements—i. e., take out a saloon license if he wishes to sell "nips" behind the counter.

This decision as given above is far more reaching than I supposed. If it is really true that no druggist can in the future sell intoxicating liquors without taking out a saloon license, we can praise God for another advance in temperance legislation.

"ROBBING SICK PEOPLE;" HOG-CHOLERA CURES.

I hold in my hand a pamphlet of 8 pages sent out by the Agricultural Experiment Station, Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa. This pamphlet gives in detail the results of experiments with six so-called hog-cholera cures. From a summary at the close of this bulletin I extract the following:

All tests above indicate that none of the products entering into the tests protected hogs against attacks of hog cholera except hog-cholera serum prepared according to the general plan worked out and recommended by the Bureau of Animal Industry of the U. S. Department of Agriculture.

I have several times of late seen notices in agricultural papers that the hog-cholera cures, like much of our advertised patent medicines for the human family, were worthless, or worse than worthless, because they prevent the poor suffering farmer from availing himself of the remedies advertised by the U. S. Department of Agriculture. There is a big moral here—do not touch or listen to anybody recommending or selling any cure for domestic animals unless it has the indorsement of the experiment station belonging to your own state or the indorsement of the Department of Agriculture at Washington. I grant that sometimes the venders of these medicines are honest, but they are mistaken. Our several stations have competent men to advise and safely direct in all these troubles that afflict the farmer.

In the experiments detailed in the bulletin mentioned above, all of the pigs died when treated with the six different remedies, and *not one* died when treated by the authorized hog-cholera serum.

SPECIAL NOTICES

BY A. I. ROOT

"THE STORY OF ART SMITH."

The above is the title of a paper-bound pamphlet of 94 pages. It was sent me by my grandson feeling sure I would be interested in it because of the fact that I was with the Wright brothers when they made their first flight that succeeded in bringing the machine back to the place of starting. The book interested me for two reasons: First, because it was all about experiments with flying-machines; second, because the boy started out when he was only 15 years old—nearly the same age that I was when I started out giving "lectures(?)" on chemistry and electricity. There is still *another* reason why the book took a mighty hold on me. This boy, Art Smith, it seems to me, had more mishaps and discouragements and failures than I ever heard of falling to a single human being; and yet he is now, at the age of only 21, turning somersault after somersault away up above the clouds, leaving a trail of smoke by day and a trail of fire by night, to show the path that his machine actually made through the sky.

I think that when I first opened the book I was standing up; and in a little while I got off by myself where nobody would interrupt me. As it came dinnertime I felt I could not stop for dinner nor anything else; and I am afraid I was unfeeling enough to get off with the book where Mrs. Root could not ask *why* (for once in the world) I was not ready for dinner. I doubt if I ever before got hold of any book that held my attention as did that one. Here is a brief extract from page 4:

"Of course, there are only a few of us now who feel at home in the air—really at home, knowing the air and its ways, so that we can roll about up among the clouds like a kitten in a basket. Because we are pioneers in the air, with difficulties and dangers to overcome, it is interesting to know how we do it, and what it feels like.

"The story of how I learned to do it is doubly interesting to any one who is trying to do anything difficult in the world, because I think no one can have a harder time realizing his ambition than I had in learning to fly."

In the middle of the book we read of the way his machine turned over sidewise and was going crashing into the ground with the heavy engine, etc., and when within twenty feet of the earth it suddenly righted and skimmed off like a bird, unharmed. When his good mother (a *praying* mother, by the way) saw that death to her venturesome son seemed *inevitable*, she fell on her knees and said, "O God, save my boy!" and, *while* she was praying, the machine righted itself in a second of time, and her boy was saved. Below is the finishing paragraph of the book:

"The world is carried forward by man's great dreams. The greatest dream of all is the conquest of the air. What it will mean to human life we know no more than Watt knew when he watched the lid of the kettle and dreamed of the first steam-engine. Aerial navigation will mean, as the steam-engine did, more than we can imagine now.

"Big men are working on it. Big men will some day conquer all the difficulties which we are fighting.

"We are only pioneers, but we are pioneers with a great idea. Some time in future centuries the whole world will be revolutionized by that idea. Then it will know the value of the hope and the thrill we feel as our aeroplanes rise from the earth, pass through the clouds, and fly high in the clear upper air."

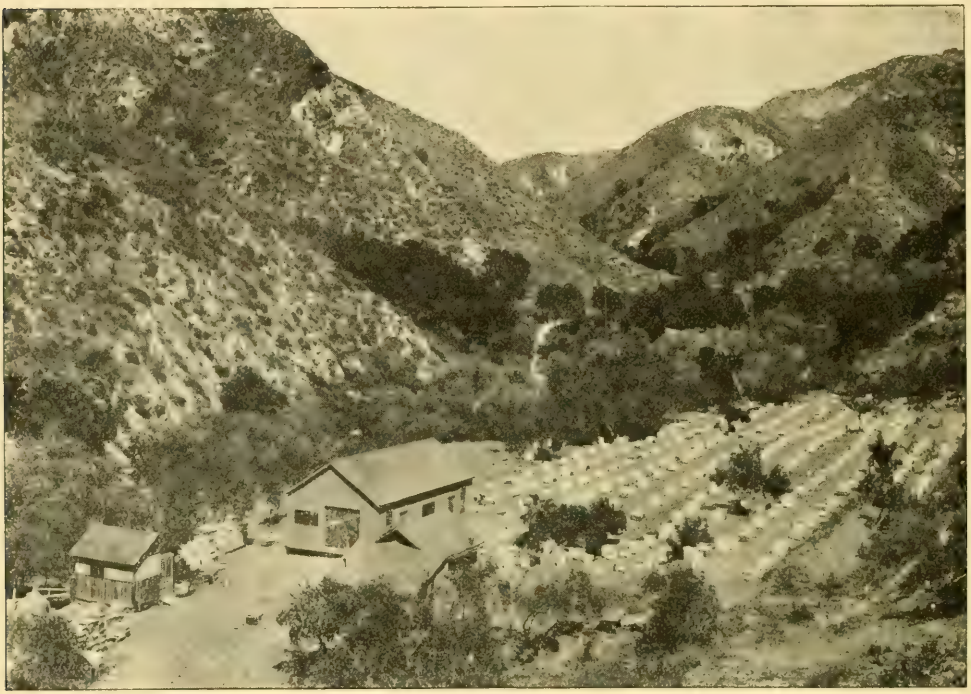
The price is 25 cents postpaid: but every one who sends us $1.00 for GLEANINGS may have the book for 15 cents. I am well aware that some of my good friends may criticise me for encouraging what has cost so many lives already; but my reply is that the book will help to *save* life; and it will also encourage patience and perseverance among the young inventors now growing up more than any other book that I have ever read or heard of. The book is not fiction, because every event mentioned occurred out in the open air in the plain sight of hundreds and thousands gathered to see Art Smith fly—the boy who was born and brought up in Ft. Wayne, Ind.

Special Number on the Use of Honey in Cooking



Vol. XLIII OCTOBER 1, 1915 No. 19

This is Pacific Coast Year



The eyes of the nation are turned toward the empire of the western seaboard with its two expositions and its unparalleled opportunities for travel.

Similarly, the beekeepers of the West, producers of an important part of its wealth, are turning to the two branches of The A. I. Root Company for their supplies.

Californians and producers in other Pacific Coast states who are in the market for supplies are asked to write for catalogs and prices.

Full line of Root goods are carried at both offices. Do not forget those power extractors. Order your cases and cans early.

While enjoying the splendors of the Panama-California exposition at San Diego this year, remember to inspect The A. I. Root Company's exhibit in the Varied Industries Building. Our concession stands at the right of the east entrance where you can't miss it. It's interesting and comprehensive. See demonstrations of the new friction-drive power extractors. We have another exhibit in the Palace of Food Products at the Panama-Pacific exposition, San Francisco.

The A. I. Root Company

58 Sutter St., San Francisco **942 East Second St., Los Angeles**

Gleanings in Bee Culture

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EDITORIALS

Honey-crop Reports and Prices

Evidence is accumulating showing that the crop of clover and other northern white honeys is much larger this year than last. This is not saying that clover was not an entire failure in some parts of the North. The fall flow has been reported as being remarkably heavy in a large portion of the North. In other respects the western crop is about the same as reported in former issues.

Prices are running anywhere from 15 to 20 per cent lower than last year on all grades of extracted. There is probably more comb honey than was expected earlier in the season. It is now being unloaded, and there is every indication that it will bring good prices.

Excessive and Late Swarming this Fall; Clover Prospects for Next Season

We have had a large number of reports this year of late swarming—of how the bees rushed out of their hives without even building queen-cells. One of our subscribers, whose letter we may publish, tells of getting 175 swarms from 70 colonies, spring count. There have been other reports of of a similar nature. Many of the swarms came out without knowing where to go—that is, they left hurriedly without sending out scouts. Some swarms leave no queen-cells. One beekeeper packed his bees for winter, and then had a swarm come from the winter case. See what O. J. Jones and Dr. Miller have to say, p. 817.

It is evident that the cool rainy weather over a large part of eastern and northern United States during the spring and late summer has stimulated everything to a vigorous growth. Bees are working well on alsike, second-growth red clover, heartsease, Spanish needle, asters, buckwheat, and goldenrod, as they have never done before at this time of the year.

In all of our more than thirty years' experience in connection with this journal we do not remember a time when there were so many reports of such heavy flows in the fall. Everything seems to be raining down honey except, possibly, white clover, which is still in bloom.

Beekeepers in the clover districts particularly seem to be jubilant over the prospects for next season, for never was there such a mass of young white clover as seems to show up everywhere. If we do not get a drouth this fall or next spring, and we must not forget there are two *ifs* in the way, we shall have a record-breaking clover season next year.

How to Sell Comb Honey under the Federal Net-weight Law and Get Pay for Every Ounce

An old correspondent, who is also a large producer of honey, has written us for information. He says if he is compelled, under the federal law, to mark the minimum net weight on each individual section, and sell on that basis, there will necessarily be a surplusage of anywhere from ⅛ to ¾ ounce of honey that he will lose on every section of his entire crop. He estimates that, if he sells his comb honey on the basis of actual minimum net weight per section, and not their actual aggregate net weight per case, he will lose $100 on one shipment alone.

Our correspondent is laboring under a wrong impression. He, like all other producers, if he uses separators or fences, will probably have three grades, one class calling for a minimum weight per section of 12 ounces, another of 11, and another of ten. We could sell a case of 24 sections of the 12-ounce class and get no more than 12 times 24 ounces, or 18 lbs.; but that is not necessary. For his information, and for the information of every one else, we may say that the federal net-weight law, while it does require the marking of the individual packages or sections, it does not compel *selling* on that basis. It is permissible to mark the minimum weight on the carton inclosing a section. The purpose of the law is to give the consumer a chance to know approximately how much actual weight he is paying for in the package.

We find in practical experience that the

average 24-pound case of sections marked "Not less than 12 ounces net" per section will run anywhere from 12 to 18 ounces more than the actual minimum weight of 18 pounds. The producer is permitted to sell a caseful of sections at its actual weight exclusive of the case and the wood around the combs; but the weight should be marked on the end of the case. On that basis *he gets pay for every ounce of honey he sells.*

The retailer, however, will probably sell the sections at so much a piece. One customer will get just exactly 12 ounces, while another will get 12½, and still another nearly 13 ounces; but the dealer, in order to protect himself, will mark the price of his sections high enough to cover the variation. But there is nothing to prevent his selling each individual section at its actual weight. He will then be obliged to stop and figure up the price as he would that of a chunk of meat or a plate of butter that is dipped out of a crock. On a busy day this is impracticable. In nine cases out of ten he will sell by the piece; and right here the federal net-weight law, instead of being a hardship, is welcomed by the dealer and the buyer; and it ought to be welcomed by every honest producer, because he knows that his customer knows just how much he is paying for.

But there is another way by which our correspondent can protect himself, and it is used by a large number of producers and wholesalers; and that is, to sell the honey at so much per case. For instance, a 24-pound case of sections marked "minimum of 12 ounces" will bring, we will say, $2.75 per case, or $3.00, whatever figure he can get. A case of 11-ounce sections will bring correspondingly less; or, if he chooses, there is nothing to prevent him from selling all his comb honey at so much per case, whether it is 10, 11, or 12 ounces per section. It is the usual practice to sell the 12-ounce as "fancy," the 11 ounce as "No. 1," and the 10 ounce as "choice," each bringing a corresponding price.

As time goes on, we believe the public will appreciate the fairness of the federal net-weight law, because it will operate to the advantage of the honest producer and dealer alike. The only fellow it hits and hurts is the producer or dealer who was in the habit of selling irregular sections of all kinds of weight, and light sections at the price of a regular and first-class graded product. As it is not practicable nor necessary to mark the *actual* weight on every individual section, he is compelled to mark the minimum, and to grade by weight.

What is it—Nosema Apis, Bee Paralysis, or What?

DURING the last two months we have had complaints from a good many beekeepers, particularly in the Northwest and extreme Northwest, to the effect that a peculiar malady, something like bee paralysis, was carrying off adult bees by the thousands. They have seen traces of it other seasons, but this year it is particularly bad, ruining entire apiaries in some localities.

In some places, particularly in and about Portland, Oregon, the disease has disappeared. In other cases it seems to be as virulent as ever. Many of the symptoms are similar to those of bee paralysis, and yet just enough unlike it to make one think it is something else. A description of the malady, whatever it is, appears to tally very closely with the disease known as "nosema apis," or Isle of Wight disease of Great Britain.

It has been found this season in parts of Wisconsin, Minnesota, and clear along down the Mississippi Valley; but it seems to be particularly severe in and about Seattle, Washington. One of our subscribers, Mr. M. Y. Calcutt, writes:

> I am enclosing you herewith a clipping from the Seattle *Times*. You will see what Prof. Trevor Kincaid has to say regarding a disease that has scourged the bees.
>
> On the 28th of July I noticed the bees were hopping about in the grass, and were to be found in bunches on the ground with their heads together as if starving. On examining the hive I found they had plenty of stores. I then examined yard No. 2, and found like conditions existed there. I then started out to other yards, and found the same condition in all hives in this part of the county. Bee men from other parts were soon calling on me to see if I could give them some advice as to what was the matter with their bees, and the remedy to be applied. I was sorry indeed that I could do nothing for them but to advise shaking and feeding up for new broods, as all or nearly all the brood was dead or dying. The disease seems to attack the larvæ from three days old to that about the time the larva is to burst its cocoon. The cell-cappings are the same as American foul-brood cappings. Prof. Kincaid tells me that the bees' heads are full of spores, and he is convinced the disease is communicated through the flowers, which must be so, judging from the rapidity with which it has spread. I am inclined to think he underestimates the number of bees destroyed since July 28. I am fully convinced, from examination of all the hives here, and those in my yards, that fully 80 per cent of the bees have died since that date. Two-story hives do not to-day contain one good frame of bees. It looks at this writing as if no bees will be left. If shaking and feeding will not stop it, then all the bees are doomed; and, as Prof. K. says, the fruit crop for 1916 will be small indeed. I am sending samples to Washington, D. C.
>
> Seattle, Wash., Aug. 28. M. Y. CALCUTT.

The newspaper clipping referred to is as follows:

HONEYBEES OF NORTHWEST ARE MEETING DEATH; STRANGE MALADY, THAT IS ATTACKING NOTED ZOOLOGIST'S HIVES, IS WIPING OUT COLONIES IN SEATTLE.

Jeopardizing the entire 1916 fruit crop of the Pacific Northwest, a mysterious scourge, so far baffling to specialists, has already decimated fully fifty per cent of the bees in this state, and is threatening, unless some remedy is found, to destroy completely the bee industry in Washington.

Professor Trevor Kincaid, zoologist of the University of Washington, and one of the best-informed entomologists in the United States, has lost more than half of his own bees, and has received a number of letters from all over the state informing him that the honey-making insects are dying by the thousands.

He believes that practically half of the honey-producers in the state are already dead; and as these insects are largely instrumental in pollenizing the fruit-trees, the growers will face a serious problem next year if the ravages of the mysterious disease are not halted.

"I thought at first that the disease was bee paralysis," said Professor Kincaid; "but further investigation has convinced me that it is a complaint that is analogous to malaria or sleeping sickness in the human family. I have expectations of being able to work out a cure. It may be that the disease is being spread by bumble-bees.

"Ordinarily a bee is a fierce fighter, and is well qualified to take care of itself; but since the disease has appeared among them they have become easy prey to their enemies. Yellow-jacket wasps, which ordinarily will not tackle a bee, are hovering around the hives in hundreds. They attack the bees, and the latter are unable to retaliate.

"I have been unable to find any information on this disease in the text-books, and have communicated with the Department of Agriculture. The entire Northwest is involved: and unless the disease is eradicated it is going to have a very serious effect on the fruit crop next year. This year's crop will not be affected, as most of the trees have either borne fruit or are in bud."

No one else has before mentioned that the malady has any effect on the brood. In the Seattle case we should assume that there was such a rapid decimation of bees that the brood,by reason of neglect, simply dies. It is our opinion, therefore, that, so far as the brood is concerned, it is only a case of neglected or starved brood.

Every year, for the last 25 or 30 years at least, we have seen dead and dying bees in the fields; but the number was so small as to attract very little attention. Practically every beekeeper, if he has any considerable number of colonies, has noticed the same thing; but it was not until this year that it has broken out in such a virulent form. The presumption is that the peculiar season—cold, rainy, and wet—has had something to do with it. If it is nosema apis, it seems to like a humid atmosphere, such as is found in Great Britain and in Oregon and Washington of our own country. We have never heard of nosema apis in this country, unless it was what we call bee paralysis, until this year.

We talked with Dr. E. F. Phillips, of the Department of Agriculture, about the general aspects of this malady. We asked him if he knew anything about it. "Only the symptoms, which are by no means uniform, and nothing about the cause and cure," he replied. The foul-brood inspectors of Central United States have seen much of it.

It may be reasonably assumed that Dr. Phillips will do all he can to get all the reliable information he can concerning this new disease. Possibly it is not a disease at all, but a malady due to climatic conditions.

Some New Uses of Honey in the Home

We are rather proud of the magnificent way in which our subscribers have responded in furnishing recipes for using honey for this special number on the use of honey in cooking. At one time it looked as though we should have to make this number about twice its usual size in order to use all of the good recipes that were sent us. However, by doing a little crowding we have succeeded in getting them in.

To the best of our knowledge none of these recipes, except as otherwise noted, have ever appeared in any other publication. Of course, some of them might have been copied from some other papers, but most of them, we believe, are original with the persons who sent them in.

It is, perhaps, proper at this point to remark that we have tested quite a number of these recipes—not all of them, to be sure, for that would be a task indeed. Perhaps it would be a little nearer the truth to say we have tested them "by proxy," the proxies being Mrs. E. R. Root, Mrs. H. H. Root, Mrs. J. T. Calvert, Mrs. Neal Kellogg, Mrs. L. W. Boyden, and Ruth Boyden. Some of the results of their work are shown on our cover and also on the interior pages of this issue. One or two recipes were voted a failure; but in the majority of instances every one who had the privilege of eating some of the cakes, pies, or cookies in question pronounced them excellent.

Honey certainly makes a great difference in a recipe, provided the recipe in question is well balanced and all proportions right. As we have mentioned many times before, the mere substitution of honey for sugar seldom results in success, for honey and sugar do not have the same physical characteristics. However, with distinctly pleasing results, honey may often be used instead of molasses or the so-called "corn syrup," without further change in the recipe.

HONEY HOT OR COLD.

We have noticed in our own home, and in the homes of many others of our acquaintances, that honey is not apt to be used as much in extremely hot weather. There are, perhaps, several reasons for this, perhaps the most important being that honey when it is warm is much thinner and a little stronger in flavor. Honey that is cold and thick certainly tastes better. Mr. Holtermann points this out in his note on page 799.

For the same reason, not many people care to eat honey on hot breakfast foods. Of course, there are exceptions; but the average person, we will say, if he uses honey at all on breakfast foods, prefer it on a cold cereal like cornflakes, etc. To take advantage of this fact, we should not be too strenuous in insisting that honey *never* be placed in a refrigerator. It should not be stored there indefinitely, that is true; but it is greatly improved if it can be placed in the ice-box for a few hours just before it is served on the table. Even hot biscuits taste better if the honey is thick and cold.

HONEY FOR BROWNING PANCAKES.

It has been suggested before, but is well worth repeating here, that a little honey stirred in with pancake batter serves an excellent purpose in permitting the cakes to be baked to a rich golden brown without danger of burning. It is not necessary to use enough honey to sweeten the cakes. Every one likes griddle-cakes better if they have the proper color, instead of being pale and white.

BUCKWHEAT HONEY FOR VINEGAR.

One of our subscribers, Mr. Chas. A. Johnson, of Battle Creek, Mich., commenting on the fact that honey vinegar is so often pale or water-white, points out that if buckwheat honey is used the color is exactly the same as that of vinegar made from apple cider.

HONEY USED IN LATHERING THE FACE PREPARATORY TO SHAVING.

The beneficial effect of honey on the skin has long been known. There have been many preparations using honey in the various creams and ointments for rubbing on the hands and face. Men who shave themselves may be surprised to learn that lather containing some honey is delightfully cool and creamy compared to the thin and quick-drying lather so often produced, even from the best of shaving-soap (advertisements of the soap in question to the contrary). We have incorporated the honey in the soap, making a very satisfactory paste or cream; but the most convenient way to use honey when shaving is to put a small amount of honey on the end of the brush and then use whatever soap is desired, in the regular way. Put three or four drops on the end of your *wet* brush, and then use your favorite soap. You will find at once that the advertiser's "dream" has come true. The honey is soothing to the skin, and the lather remains smooth, moist, and creamy, even if it takes fifteen minutes to shave.

HONEY AS A CURE-ALL.

Soon after the announcement of this special number we received quite a good many so-called cures for such serious troubles as cancer, erysipelas, etc. We have taken the position that, before publishing the recipes for these salves, ointments, and lotions we should have the signature of at least one reputable physician with a report of his experience using the cure in question. Such salves might not do any harm, but we seriously doubt whether they would be of any benefit whatever.

A simple remedy for a cough, which we have found of especial value for small children, is a mixture of honey and common vaseline. Equal parts may be stirred together, forming a paste; and as much as a spoonful of this may be given at a time without danger of disturbing the stomach. Ordinarily half a spoonful is enough. All children like it.

The Troubles of an Editor; Quality versus Beauty only

In our issue for Sept. 1, page 699, we have an editorial headed "Can Good Queens be Raised and Sold for 50 cts.?" We went on to state that there were times in the season, especially at the close of it, when the breeder could afford to sell his surplusage of queens at 50 cts. apiece in order to reduce stock; but we added that we did not believe that, as a regular proposition, week in and week out, he could afford to do so through the entire season, and we still think so. Two of our standard advertisers, good men, and who furnish good stock, seem to think we had them specially in mind when, as a matter of fact, we were not referring to any one. At all events, they put the shoe on just the same, and, of course, think we have been unfair.

In looking at the advertisement of one of them (the one who makes the loudest holler) we notice that he has a "surplus of young queens," heading his advertisement with the words "Special Offer."

Our editorial, as will be seen, was not criticising queen-breeders who are disposing of "surplus stock" or making "special

offers." We simply raised the question as to whether one can maintain the price of 50 cts. all through the season.

Still another party—a well-known queen-breeder of first-class golden stock, and one of the best-known men in our ranks—complains because we have given it as our opinion that many of the extra golden-yellow bees are not as good as the leather-colored stock. It seems we wrote this party, congratulating him on the excellence of his stock, because it was resistant to European foul brood. Immediately he came back at us, saying we were inconsistent in praising the thing we had condemned. We tried to explain to him that we could not afford to smother our honest opinions, right or wrong, simply because of the few extra dollars we might make in our advertising columns. Moreover, we have never declared that *all* goldens are inferior to the leather-colored stock.

In almost the same mail came a letter from a breeder of extra-yellow bees, commending us for the fearless stand we had taken in our various editorials, and saying that he expects to take GLEANINGS for the rest of his life. *He*, evidently, does not consider that we are condemning *all* goldens. The fact is, if a breeder sells good stock, golden or leather-colored, the trade will discover it and patronize him. This is shown by the fact that some breeders have advertised with us for years.

To make our stand clear, it may be well to reiterate that, although we have spoken disparagingly at times of *some* goldens, we have not condemned all. That is only another way of saying there are some goldens that are not only beautiful, but good workers, and some goldens that seem to resist European foul brood as readily as leather-colored Italians, and possibly better. We would gladly give the names of some of these breeders who are furnishing this kind of stock; but if we did so, this poor editor would have more trouble on his hands from the other fellow whose name was conspicuous by its absence.

If the reader cares to look over our editorials he will see that we have frequently condemned the policy of advertising five-banded bees, and furnishing only three and four banded stock. While there is such a thing as a "five-banded" or "yellow-to-the-tip" bee, it is almost impossible to make *all* the bees of a queen show up like that. The effort on the part of some to get the "yellow all over" has naturally led them to sacrifice efficiency and longevity for color. As a natural result, many of the extra-yellow bees have been markedly inferior to bees bred for business, color being maintained only as a secondary consideration.

It is the *policy of breeding for one thing only, and that thing not a business qualification in our bees, that we have condemned; and we still stand on the same platform. We do not condemn beautiful bees that are also good workers, nor the breeders of them.* Some of these people have developed some very fine stock, including our advertiser who complains.

Dr. E. F. Phillips and the Editor of Gleanings at the Home of Dr. C. C. Miller, of Marengo, Ill.

DR. PHILLIPS and ourself had the pleasure of paying a very short visit at the home of Dr. C. C. Miller, on the 6th of September last. We were on our way to the field meet at Hamilton, Ill., the home of the Dadants, and stopped off one day.

There may be other beekeepers who produce honey in sections who harvest larger crops. There certainly are many such. There may be others who can produce an equal quality and possibly better; but practically all of them are using some of the methods, at least, of the sage of Marengo. Dr. Miller, in the opinion of Dr. Phillips, has evolved a system of comb-honey production that is very nearly perfect. He has no trouble about getting bees in comb-honey supers, and very little difficulty in controlling swarming. He will secure a crop of comb honey when other beekeepers get almost nothing.

The secret of his success lies in securing *a large force of bees in time for the harvest.* Said Dr. Phillips, "Too much emphasis cannot be placed on that point." His other secret is *conserving the force of bees after he gets it.* "Secret," did we say? Dr. Miller has no secrets and never did have; but he does have tricks of the trade that every producer of comb honey in the United States should know. Thousands of beekeepers who have been running for section honey have given it up in disgust. Something is wrong. They complain that they cannot get the bees into the supers; that their honey-flows are too short and intermittent; and that the swarming problem is too much for them. But Dr. Miller handles all of these problems at the ripe old age of 84, with no other help than that of his sister-in-law. In fact, he has been doing it year after year for thirty years.

At the time of our visit there was such a roar of bees about his yard that it looked as if there was a big swarm in the air—in

fact, several of them. Nay, rather it looked exactly like a wholesale case of robbing; but it was neither. An inspection of the apiary showed that large streams of bees were going into every one of his hives. We never saw such a furor of bees before in so small a yard—92 colonies, spring count. While the apiary was small, there was an immense force of bees in every hive, and on every one of them there were anywhere from two to five comb-honey supers well on to completion. The honey the bees were getting at the time was apparently from heartsease. While Dr. Miller had taken off a small crop of fine clover honey he feared that what was still in the hives might be flavored with heartsease; and heartsease does not improve a fine clover.

We had a great curiosity to see what the bees were working on. There were acres and acres of white clover in bloom. Was it not possible the bees were working on that? But there did not seem to be many bees on these blossoms; so we took a stroll all by ourself, leaving the two doctors—the M. D. and the Ph.D., to discuss the problems while we were gone. We went over the hills, through patches of woods, through barbed-wire fences galore; through cornfields; got lost, but finally got back, after a wide detour, to the home of the Millers. The women feared we were lost, and began to think seriously of sending some one after us; but, like the proverbial penny of uncertain quality, we turned up.

They were all eager to know what we had found—that is, what the bees were working on. We had to confess we did not know. There was occasionally a bee on the clover—perhaps one to every radius of 100 feet. There were quite a number of bees on sweet clover, and occasionally a bee on the heartsease—perhaps one for every radius of ten feet. Heartsease—there was lots of it just coming into bloom. It grows as a weed in the cornfields, and corn is grown extensively about the Miller apiary. While the heartsease was only just coming into bloom with only a few bees on it, it did not seem possible that such a great roar in the yard could have come from that source, and yet there was an odor of fall honey about the hives. It might have been from the asters; but the asters were negligible, for but few of them were in sight. There was some Spanish needle, but there were no bees working on it. There was considerable sweet clover, but apparently not enough to make such a showing. What, therefore, could the bees be working on? Dr. Miller began to figure—one bee for every radius of ten feet on the heartsease, and there were many tens and tens of acres of it in the cornfields that were numerous. The bees on the white clover, on the sweet clover, and the heartsease, if they were scattered over a radius as large as 1½ or 2 miles, might, according to Dr. Miller's figures, account for that tremendous roar of bees.

Although Dr. Miller is in the habit of taking a midday nap, he was bright and alert all the time we were there from 11 o'clock until 7 at night. We could not imagine any kid beekeeper more enthusiastic than this veteran of 84 summers. Of course, Dr. Phillips and ourself gave him some hard question. Always modest, he frequently said, "I don't know."

A striking feature of Dr. Miller's make-up is his modesty. He does not seem to know that he has discovered methods that make for success. He claims no originality, and yet he certainly *is original* in making up a combination of methods that is unique in the production of comb honey.

By the way, we forgot to mention one thing, and that is Dr. Miller's strain of leather-colored Italians. While his methods and his locality have done much to contribute to his success, careful selection of queens of his own breeding has been an important factor. No mistake about it, they are hustlers, every one of them. Those queens ought to be worth from $10 to $25. With those queens Dr. Miller is successfully combating European foul brood. They are not much inclined to swarm if his methods are used, and they certainly get there with the honey.

We do not know that Dr. Miller has any queens for sale; but he said, "At our ages" (referring to himself and his family), "we have more bees than we can handle. We may be compelled to cut the force down."

Dr. Miller does not know that we are giving him a free advertisement; but we suggest that some of the queen-breeders of the country get some of his stock and cross it with their own before it is too late and the genial smile of the owner is forever gone so far as this world is concerned.

But, to return. When we left Dr. Miller at the electric station to go back to Chicago, and from there on to Hamilton, there was the same smile that doesn't come off, but a look—a far-away look—as if he thought that possibly he might not see us again on this side of the river that separates us from the world beyond. We hope we shall see him every year till he is 100. If careful living will do it, he will reach the mark. Indeed, he looks as young as he did ten years ago.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



GRACE ALLEN, p. 702, sometimes darkness is an advantage when introducing, since there are then no robbers about to make the bees ball the queen.

THE OUTLAW, p. 545, has surely struck on a good thing in having full frames instead of sections for cafeterias. As the honey is to be cut up into portions in either case, what advantage is there in the section?

G. M. DOOLITTLE, many thanks for telling us, p. 750, what perhaps I ought to have known, but really didn't know, that it made all the difference whether a full or an empty comb was used in spreading brood. After all, if the bees already have all the brood they can cover, will spreading be a good thing?

J. E. CRANE, you say, p. 748, that sections with bottom starter were no better attached at the bottom than those without. Does that mean that the bees gnawed down the bottom starter, that they build down well without it, or what? When I used no bottom starter many sections were not built down at all, while with them there is no failure. What makes the difference?

FOOLED again! On p. 745 I said that, although bloom was abundant, I gave up hope of anything to speak of from it. Scarcely had I written that when the bees started on a craze for gathering I never saw excelled. Clover, aster (other years aster yields nothing here), heartsease, and I don't know what all, seem running over with nectar. You never know what bees will do next. [See reference to this subject in editorials, this issue.—ED.]

A CORRESPONDENT refers to page 553 of A B C and X Y Z, where "a frame of unsealed larvæ" is recommended to attract the bees of a swarm, and wants to know if sealed wouldn't do as well. Generally, when you take from a hive a frame containing unsealed larvæ, you will have sealed as well, and I suppose nothing could be better than a frame having all kinds. But if it is a choice between a frame having only unsealed and another having only sealed, all my observation tends toward the belief that bees have a stronger attachment to the sealed. [A. I. Root, as you will remember, used to teach and preach that a swarm favors unsealed rather than sealed brood—or, rather, he always gave directions that, in order to hold the swarm in its hive, we should give a frame of unsealed brood. Who is right?—ED.]

MR. EDITOR, you ask, p. 746, whether my treatment of European foul brood is not the basis of the Alexander treatment. Let me say with all the emphasis I can that I never wanted it understood that my treatment was anything but the Alexander treatment, the big principle of the whole thing being that cessation of brood-rearing would allow the bees to clean up. I merely shortened the time of treatment, and that by a stupid blunder—a change that I am sure Mr. Alexander would have made if he had lived long enough. [Yes, we know very well that you do not claim originality except in the matter of time; but we merely asked the question in order that the public, who, perhaps, had forgotten, might know the precise situation.—ED.]

A YOUNG queen is far more profitable than an old one, because she will lay till late in fall, while "an old queen that has exhausted herself in the early part of the season will usually stop laying when the main honey-flow ceases," page 699. True as preaching. Yet the evils depicted as resulting from that old queen being left don't happen with me. I suspect it's because the queen that has exhausted herself is always superseded by the bees. At any rate I don't believe it pays for me to meddle with the superseding business unless there's some other reason for it than old age. [The conditions in a comb-honey-producing yard and a queen or bee producing yard are not the same. In the latter, breeding is forced in season and out of season by feeding. In the ordinary production of comb honey, breeding begins early in the spring and continues from the time honey begins to come in heavily. The gathered nectar often fills up the cells that would otherwise be occupied by the queen. The result is, her bodily vitality is not drained in the same way that it would be if she were given unlimited room, and forced by feeding. In the former case the bees might do their superseding soon enough. In the latter case would it not be more profitable to use young queens, especially those bred after or about the time of the main honey-flow?—ED.]

BILATERAL multiple is the name of the latest honey-extractor, the invention of M. Etienne Jacquet. You put into the machine a single comb, or any number up to 20, pull down the cover, turn the crank for a time,

and there you are—both sides emptied without any reversing, automatic or otherwise, with no crushing of cells against wire cloth, and no danger of breaking combs out of frames. Twenty frames at a time, mind you.—*L'Apiculteur,* 60. [It is a little difficult to determine the precise principle of the extractor referred to above. If it is of the non-reversing type, the pockets arranged like the spokes of a wheel, the bottom-bars of the frames next to the shaft of the reel, or if all the frames are in the same plane, with the end-bars pointing toward the hub of the wheel, either or both have been thoroughly tested and found wanting. They have been illustrated and described in the journals. Thin honey, such as some beekeepers too often extract, can be removed from the combs on either of these two plans. But even then the combs are not cleaned. It is impossible to extract thick honey and get more than fifty per cent of it out of the combs. The only way to extract clean is to have the combs reversed so that the full strength of the centrifugal force can be applied. We went over these principles very thoroughly some fifteen or eighteen years ago, and found that a non-reversible machine, or, rather, a machine that extracts the combs without reversing, is a long way from a success.—Ed.]

About that quahking business, p. 747. The trouble with you, Mr. Editor, is that you are too up-to-date, discouraging all natural swarming, so that I am wondering whether you ever heard quahking. I have not for many years; but my recollection is this: In the evening go to a colony that contemplates sending out an after-swarm next day, and put your ear to the side of the hive. For a time you hear all sorts of gabbling, and then comes a clear tone above all others, long drawn out, followed by several others, each one shorter than its predecessor. That's *piping.* Immediately come one or more responses—each response a succession of short tones, the first tone as short as the last. That's *quahking.* The two may be made the same way; but do you think a cell or a barrel could account for the difference in length? [Yes, in the olden days we have heard quahking as well as piping. As we remember, there were two notes. The lighter one sounded like a tiny tin trumpet a long way off, while the other sounded like a larger trumpet closer by. While it is true one can hear both piping and quahking when a colony is about to cast a swarm, is it not probable that the piping is made by a hatched queen, and the quahking by another one in a cell as a challenge? And is it not probable that the two sounds are made by the same organs in precisely the same way, but under different conditions? Naturally enough, the same sound inside of a wax cell would be weaker and more muffled than outside of it. Perhaps a barrel is not a fair comparison, but it would seem that the quahking would be shorter and more intermittent inside of a cell because there would be less air immediately available. We have to confess we do not know very much about this whole proposition.—Ed.]

Uniting is most easily done by the newspaper plan. Put a sheet of newspaper over one hive, and set the other over, with no chance for the upper bees to get out till they gnaw through the paper. In the same way a queen may be introduced by setting over the hive the nucleus containing the queen, with newspaper between the two stories. Sometimes you want to unite a queenless colony, A, with a nucleus, B, leaving all on the stand of the nucleus. Here's a good way: Take a single comb with adhering bees from A and give to B, making sure that the added bees are not more than half as many as B already has. Next day add another comb or two, and so on each day until all are used up. At the last leave a comb for any returning bees, giving these to B. [If this form of uniting be practiced in September it may occur during a spell of very hot weather; and then would there not be danger that the bees in the upper hive might smother for want of proper ventilation? Of course, if it were only a nucleus it might survive a boiling hot sun on a hot sultry day. When bees have access to an entrance they can control the temperature of the hive by ventilation; but when all means of access are closed, the temperature of the hive may go clear up to a point where it would kill bees and brood.

In our locality a thermometer placed on a hot day on top of a hive-cover painted white will reach from 120 to 130 in the sun. That would mean that the temperature of a closed hive might be 110. Such a temperature would kill some brood.

Practically speaking, however, the outside temperature at the time of uniting is generally low enough so the newspaper plan will work 99 times out of 100. But even then are there not some returning bees after a hole has been made through the paper?

The other plan of uniting comb by comb would be a slow process. We much prefer uniting the bees at two different yards where the bees are operated on the outapiary plan.—Ed.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



At the present writing we are feeding all our increase, and looking hopefully for a sufficient fall flow to winter on. And we are not the only ones feeding. "Giving 'em a hundred pounds of sugar a day," a beeman from a neighboring county cheerfully announced last week.

* * *

Though I did not know Mrs. H. G. Acklin, may I not bring my woman's tribute of sympathetic appreciation to lay alongside the others heaped upon her memory? It always gives me a thrill of pleasure to hear of successful women—a pleasure intensified in this case by the realization that Mrs. Acklin met sorrow bravely, faced the world single-handed, raised a charming daughter, and was a lover of bees. And may I also send all my good wishes, like white doves, to the recent bride, Mrs. Howard R. Calvert? I suspect she knows that God didn't put all his poetry into rainbows!

* * *

We tried hard to have a field meet last month; and, for that matter, we had it, after a fashion, but not a fashion of our own choosing. The weatherman chose the mode; and, though the editor wisely suggests that the weather is of less importance than what was said, still in this particular instance (even the editor will grant this) the weather was of prime importance, because of what it caused *not* to be said. Briefly, it rained—not just that one day, but all day every day for many days. We were so sure it would stop by the date set that the meeting was not postponed. It can't rain forever, we said. But it almost can, we found out, for it almost did. So on the day itself, after standing first on one foot of our indecision and then on the other, we finally decided to go, because, since it evidently *was* to rain forever, we would have to hold our meeting in the rain some time, and it might as well be now. When the last nose was counted, we found we had gathered together seven brave and faithful souls. In the light of the adjectives, it might seem more modest to say six; but as it cost a dollar and a half to take the water-spots out of a delightfully absurd pongee coat, I shall allow myself to remain solidly classified with the virtuously faithful.

It was a good meeting for all that. No formality (with seven!), but an increased friendliness, which of itself makes a perfectly good reason for holding a meeting, though nothing else be accomplished. We talked informally of such things as different ways of making increase, the advantages and disadvantages of various-sized hives, stores for winter, and this year's crop—an average in this locality of thirty to forty pounds, and the prediction that next year'll be better, which it surely will if a clover year follows a wet year.

Foul brood came in for its share of shuddering comment. Our state inspector told how somebody had imported (unknowingly, needless to say) some diseased combs into the state, and things had immediately happened in his own apiary. "He has had his own punishment," Mr. Davis remarked, after hearing the story; "but what about the woods around him?"

"That's it," Dr. Ward answered with a sigh; "what about the woods?"

And that *is* it, apparently. What about the woods?

It was in the dash down the road for a home-bound car that a particularly lively shower spotted(?) the pongee coat. The shower passed before the car came, the sun slipped out, and there at the last was a rainbow, the brightest and most beautiful I ever saw, with a secondary one beyond, delicate as a rainbow dream. If I had thought of it sooner I'd have tried to put it into a poem. Yet, after all, no one could really put a rainbow into a poem. And why should we try? The poem is there in the rainbow. How all its colors rhyme! A perfect poem it is, and God wrote it, with the swing of eternity in its long rhythmic lines and a divineness of beauty in every lovely deepening shade, from the rim of red on the one edge to the rim of violet on the other.

Some other day we'll have a field meeting, boiling over with beekeepers and enthusiasm, and in the meantime perhaps it would be well for us to act on one of the suggestions of that wet windy meeting on the bungalow porch, and make the weatherman an honorary member of the association; then in the future he may show more tender consideration for the brand of weather he provides for the beekeepers of Tennessee.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



A headline reads, "Wintering bees on peppermint candy." I believe I could winter on that myself.

* * *

Keeping comb honey too warm will give it the appearance of being "water-capped," due to the fact that when the honey becomes too warm it runs against the cappings.

* * *

Mr. Scholl, will you kindly explain the difference between bulk comb honey and chunk honey? I am a little hazy on that distinction, and I presume there are others the same way.

* * *

I have just received word that a new beekeeper has arrived in the home of Mr. and Mrs. Wesley Foster. I have extended my most hearty congratulations, wishing all the blessings attending such an occurrence.

* * *

I read, page 686, Aug. 15, "The bee on the left was killed by a sting in the second joint of the front leg." It must have been a black bee. Colored folks are said to be very susceptible to injuries on their shins.

* * *

I saw an apiary last week that would burn "body and breeches" if fire ever got started in it. Weeds and grass were knee high, and as dry as tinder all around the hives and honey-house. If it should burn, the owner would have only himself to blame.

* * *

From the point of knowledge of the bee, San Bernardino County lost one of its foremost beekeepers on the 26th of this month in the death of Mr. Leroy Straight. He had been in poor health for many years, and had been failing rapidly for nearly a year. He died at the age of 63 years. His ability in successfully handling bees was excelled by few beekeepers of the state.

* * *

The California State Commission of Horticulture has issued a book of 500 pages, entitled "Injurious and Beneficial Insects." I am indebted to Prof. A. J. Cook, who heads the department, for a copy of the same. There are some data on enemies of the sage and other honey-bearing plants; but our old enemy the sage-weevil, so called, seems to have been missed in the shuffle. This enemy is a worm of not more than ¼ inch in length, possibly more. The egg that produces it is laid at the base of the button, in what has the appearance of being a sting in the button. It is at least a puncture of some kind for the depositing of the egg. The egg hatches, and the worm cuts its way around in the base of the button, destroying much of the bloom before it has time to open.

* * *

One of the most sudden and freakish storms burst upon us on the 26th of August. The morning was clear and bright. By noon the sky was fast becoming clouded. At one o'clock a dust storm broke all over the southern part of the state, and, to use a common expression, it was "some dusty." The dust was followed closely by rain in many sections, some places merely a sprinkle, at others a heavy downpour. The heat since has been very oppressive, the usual cool nights having disappeared for the time being.

* * *

Last week I was passing under a pepper-tree which was in bloom, and noticed many dead bees upon the walk and ground. I counted 19 on a space 4 feet wide and 12 feet long. At the same rate there must have been at least 200 dead bees under this one tree. I found upon further investigation that other trees had a like number under them. But the cause I cannot locate. Their bodies were distended much as in poisoning. Yet I have never known of bees having been poisoned by pepper bloom before. It is a mystery to me.

* * *

Mr. Doolittle, page 573, July 15, says "Cheaply reared queens are detrimental," and also, "As long as consumers insist on paying a low price for their stock, and queen-breeders advertise queens at $50 a hundred, so long must they be content with the results of queens reared without proper care." Herein lies food for thought. Grinding out quantities of queens without proper individual care and examination is not conducive to the best interests of the consuming public. I have had sufficient experience with queen-rearing to cause me to believe that producing great quantities of queens is the only way that cheap queens can be turned out with profit, but the results are very much as Mr. Doolittle has said.

* * *

There is some honey being exported from the coast—the first for nearly a year. The

crop in general throughout the West is light. The demand for honey from some sections of the West and South is very good, being mostly orders from beekeepers who have failed to produce enough for their trade. Lots ranging from a few cases to car lots are being filled. Orders from as far east as Tennessee and as far north as Washington are being received. Much of the western crop will likely be absorbed in export and western orders, leaving the East largely to their own market. With these conditions a steady market should be maintained, and a stronger feeling exist. Why should prices rule lower when the great West seems able to dispose of its holdings without invading the East materially?

* * *

An editorial, page 699, Sept. 1, reads in part: "If a queen is a year or two old she will let up on her egg-laying soon after the harvest." There is nothing I know of that would be of more worth to the beekeepers of this section than to impress this one fact on their minds. Our long dry summers make it imperative that we have a queen at the head of the colony that will force breeding matters in the face of adverse conditions, and give us as liberal a supply of young bees for wintering as possible. This can be done only with young queens, and to reach the limit of success every colony should be requeened immediately after the close of the honey-flow. Plenty of young bees and an abundance of stores are the best safeguards against spring dwindling. I am glad the editor said "a year or two" old. My way of putting it would be to say a year old, for that would cover it quite fully.

* * *

A certain orange-distributing company is sending out a series of educational folders relative to educating the public as to how best to prepare and serve oranges daintily. On one of these is the startling statement that people eat with their eyes. Literally speaking, it is a startling statement, but figuratively it is correct. The more dainty, clean, and tasty an article looks, the quicker it sells. This is especially true in the honey business. Last summer, while in the East, I visited a grocery owned by an old schoolmate. On the counter was a case of honey that was certainly the most unappetizing of any I had ever seen, being not only black but ill shaped and dauby. I asked my friend if he sold any great amount of it. He said no; there did not seem to be much demand for honey. I did not express my thoughts, but nevertheless it occurred to me that, had he had some in stock which looked a little more attractive, he would have been able to increase his sales, for a buyer used to good honey would not carry home the stuff he was trying to sell. I doubt if you could fool a blind man the second time on such an article. Fancy goods bring fancy prices. The world is strong on looks, regardless of what it may be.

* * *

On page 701, Sept. 1, I seem to be much in the position of the lost parrot. Dr. Miller and the editor both take a whack at me in the same paragraph, so I must exclaim as did the parrot, which had been the property of the matron of a large depot. His cage had long been hung near the exit gate, and eager travelers had been told so many times by the guards, "One at a time, gentlemen, one at a time," that the parrot thoroughly learned the sentence. One day he got out of his cage and into a park near by, where the bluejays were making life miserable for him when he was found. But for all, he was loudly shouting, as an occasional feather was plucked from him, "One at a time, gentlemen, one at a time."

There seems to be a disposition shown to "knock" yellow bees, and I am placed in the position of lawyer for the defense. To that end I will state that individual cases should not condemn the entire race. The fact that breeding for color has to some extent decreased the efficiency of the goldens, while two or three well-known strains of three-banders have been widely distributed for their gathering qualities, is no sign that the golden strain could not have reached just as high an efficiency had they been bred for the same quality and not for color alone. I have introduced three-banded queens from some of the best-known breeders in the country that were actually not worth the time it took to introduce them. The same has been true with the goldens; but the difference between the two has not been so great as one would be led to believe. Wishing to secure the very best golden strain in the country I recently wrote several breeders as to the base of their stock, whether it contained Cyprian blood or was originally Italian. One breeder wrote me that the base of his stock was from three of the best-known breeders of queens in the country, and gave me their names. His first aim he said was working quality; second, gentleness; then color. With a golden strain bred for these characteristics I see no reason why there cannot be a strain of goldens equal to or perhaps superior to any three bands obtainable.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



As mentioned in my September Notes, clover is very rank, and gives promise of being abundant for next year; so, after all, the wet weather has perhaps been a benefit in one way at least. Reports were circulated last spring that, owing to the war, alsike would not have a market at all; but as any seed harvested this year is bringing around $8.00 a bushel as it comes from the machine, likely many acres will now be left for seed which otherwise would have been plowed under this fall.

* * *

On page 701, Sept. 1, Dr. Miller speaks of his bees differing from mine in that they have been very strong all through the wet season—a slight misunderstanding, I suspect, as I referred to the fact that, with so many old bees carried over the winter, during the early cold wet weather they died off rapidly. For the past two months we have had rain by the tons day after day, with hardly a let-up, and at present our colonies are abnormally strong—in fact, one would wonder where all the bees are going to go when supers are all taken off.

* * *

September 10.—Beautiful summer-like weather, and yet there are hundreds of acres of grain still not cut, and, judging by present conditions, very much of this grain will be a total loss. All records in regard to precipitation have been broken for these parts; and even if we have ten days or more fair weather, the ground is so saturated that in many places it will be impossible for horses or machinery to get on the land to garner the spoiling crops. The fine weather came too late for buckwheat in so far as a crop of honey is concerned. It yielded well during the few fair days we had; and in our own case, at least, we shall have more than enough of this honey to pay for any feeding required. That is something to be thankful for anyway, when the high price of sugar is concerned.

* * *

With September here again, once more the question of aster stores looms up. While there is nothing doing here in York Co. among the bees, the apiary up north is again storing aster honey in the supers, and also plugging the brood-nests solid. It is coming in earlier than last year, and the yield seems to be more abundant also. In addition to the asters, the goldenrod is also yielding, while last year the latter plant yielded little if any honey. I hardly know whether to be glad or sorry for this late fall flow again, and I think it will take me till next spring to decide the question. One thing seems sure at present; and that is, that the bees up there will go into winter quarters again solid on these questionable stores; for although I intend to send up sugar and feed wherever it can be done, judging by last fall's experience the bees will take little sugar syrup if weather is fine for a few days yet.

* * *

Regarding the matter of queens quahking or piping, perhaps I have been at fault in not distinguishing the difference (page 631, Aug. 1); but I am not a musician, and so am unable to count the length of the notes properly. I have generally applied the first term to queens in cell yet, and the latter to those loose in the hive. But once more I must express surprise that so good authorities as we have mentioned have not heard the queens calling except on comb, while it is such a common occurrence here. Just a few days ago I placed a queen in each coat pocket, one on each side, intending to go to an outyard. I was helping Mrs. Byer move some furniture, when all at once both queens started in "conversation." For the moment I had to look where the noise was coming from, when I happened to think of the queens in my pocket. Mrs. Byer remarked, "They have been squawking all the forenoon while lying on the sideboard." Perhaps the term "squawking" will cover all included in the two usual terms; anyway, we often hear queens thus passing the time when we get them through the mails.

* * *

Reports of market conditions in last issue's editorials have been read with interest. Here on this side of the line, where war conditions would necessarily seem to affect us worse than residents of Uncle Sam's domains, we beekeepers have had a genuine surprise—at least one of them has had, anyway. While we expected slow sales at somewhat lower prices than usual, owing to a combination of circumstances, we are finding the demand extremely keen for good honey. Vegetables and fruit have been quite cheap; but honey is selling like the proverbial "hot cakes." We cannot thank

Continued on next page.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



Our honey-flow in eastern Colorado did not last into September as was hoped. In a very few restricted districts a two-case crop of comb honey was secured; but the average for eastern Colorado will not be one case. Western Colorado conditions are somewhat better, but a normal crop has not been secured. Grand Valley from Glenwood Springs to Fruita reports a very good late flow lasting into September. Some will secure a yield of two cases of comb honey. A few cars of comb honey have been shipped, and within one month very little comb honey will be left in the state. The indications are that the local trade will be without comb honey on account of better prices being secured in the East. A number of cars have been sold at more than $3.00 a case for the two first grades, and local shipments have brought from $3.25 to $3.50 a case. The comb-honey producer who can hold his honey for the local trade will be assured of good prices later in the season.

The Arkansas Valley, from Canon City to the state line, has had the poorest crop on record for the whole district. Ten to fifteen pounds of extracted honey is certainly a very unsatisfactory return, and some producers will not get that much.

* * *

THE WEATHER.

Such a season as we have had this year is very unusual. A deficiency of about 300 degrees for the summer months, and a precipitation of three inches above normal, did not help the beemen. The short snowfall of last winter was compensated by the heavy summer precipitation. In fact, the weather was so cool that the snow on the ranges, though very scarce, did not melt very appreciably. Sweet clover of the new growth has come up well, and we should have an abundance next year. We have not had a favorable growing season for farm crops, and the nights were so cool that it was with difficulty that the bees built combs. The outsides of the supers were rarely finished, and much foundation was chewed up.

About a week was all the summer we had, and very few real honey days came. The foothills seemed to hold great stores of cool weather. There was not any district in northern Colorado within fifteen miles of the foothills that made more than a case of comb honey to the colony. But further out from the mountains the days were very much warmer, and bees did somewhat better.

THE MARKET.

The demand for comb honey has been very brisk so far; and as soon as the buyers find out how short the crop is, the price will go up more. Boulder County will not produce more than three or four cases of comb honey. In past good seasons as many as thirteen cars have been shipped out. The local market this year will use (if it can get it) between one and two cars of comb honey. Idaho honey has brought from $2.50 to $3.00 a case according to the grade, and close to $3.00 has been paid for honey in western Colorado where the freight rate is about twenty cents a case more to the East than the Colorado common-point rate.

* * *

Those flower pictures shown in my article on p. 619, Aug. 1, were all taken outdoors. The camera was taken to the flowers, and not the flowers to the camera. In this way a more natural effect is produced, although clearness of detail is lost, and a satisfactory background is not always possible. The pleasure of flower photography is increased when one tries to catch bees in the act of gathering pollen or sipping nectar. Several days each year can pleasurably and profitably be spent by the beekeeper in investigating the sources of pollen and nectar, and photographing the bees at work.

Continued from preceding page.

our wholesale friends for this state of affairs, as they have done nothing to help us, and have in some cases, at least, tried hard to bear the market. Some sold quite early at a figure considerably lower than advised by the committee; but I expect by this time they will know that the sacrifice was entirely unnecessary. At any rate, the local demand in our own community was never so good, and not a word is said against prices asked. The west market is hardly started yet, as the people are too busy harvesting their great crop to think of buying honey; but there is no doubt that they will be heard from later on, and I now believe that every pound of good honey produced in Ontario this year will find a market at a good fair price, all things considered.

As to the dark-honey market, I know nothing of what we may expect; but anyway the crop of buckwheat is very light, so there should be no trouble in getting rid of it at a fair figure.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



HIVE-MAKING.

"I am thinking of making my own hives the coming fall and winter. I am quite used to carpenter work, and think I can save quite a little in making my own hives. Can you give me a few pointers in the matter of hive-making?"

The first thing that a beginner, or those of small experience in keeping bees, should learn is that hives cannot be thrown together in a haphazard way, even where the material is purchased from a manufacturer of beekeeping supplies. Few things, including stings, are more provoking or try the temper more than a set of hives which vary in size, or which have parts that are ill-fitting or poorly made. The first thing our questioner should do is to make a careful study of hives to find out just what he wants. If he proposes to produce extracted honey his hives may be somewhat different from a design suitable for producing section honey, as the accuracy required for producing fancy comb honey is not necessary when producing the extracted article. But with hives for extracted honey, every piece should be cut accurately from well-seasoned lumber without the variation of even a sixteenth of an inch. And for real fancy comb honey, even a difference of that much would not answer in a season with a profuse flow of nectar.

Then a form is needed for putting up the hives, frames, sections, etc., so that every part will come out square and fit accurately with no loose joints or leaky roofs. All should be made perfectly square—not even a trifle diamond-shaped. Frames even just a little out of true should not be tolerated, as the bees may stick one end to the end of the hive or to another frame, and at the other end build a bit of comb between, thus making things anything but agreeable when the frames need to be handled.

Be sure that the space between the top of the frames and the honey-board or cover is just right and will stay so. If the top-bars are too light they may sag when the combs are filled full of honey, as is often the case in a good season, thus making the space in the center ½ to ⅝ inch, while it is only ¼ at the ends. Under these circumstances this greater space will be filled in with comb and honey, disgusting even the "slip-shod" fellow.

See that just the right space is given at the ends of the frames; for if too much is given, combs will be built between the ends of the frames and the hive; and if too little, the bees will fill it up with propolis. The same applies to the space underneath.

For these reasons only well-seasoned lumber should be used, and that of a kind that is not subject to much shrinking and swelling. Pine is probably the best of any, though a good quality of hemlock will withstand shrinking nearly if not quite as well. It is harder to work, however, and is more liable to check and split during very dry weather. I once visited an apiary in which the hives were made of basswood, the apiarist thinking that, if such hives were kept well painted, they would be as good as any made of the higher-priced lumbers. But when I came to look over these bees the brood-chambers had shrunk so as to let many of the frames rest on the bottom-board, and the bottom-bars were glued fast so that it was almost impossible to manipulate the frames at all.

Not only should the frames and brood-chambers *be* and *stay* of the right size, but they should be so arranged as to be spaced exactly the right distance apart. I remember looking over one apiary where the frames were all the way from 1 3-16 inches to two inches apart from center to center, this making the combs so that they could not be interchanged after the bees had filled them with honey during a flow of nectar. After using different bee-spaces I still insist on having the combs 1½ inches apart from center to center. Many advocate from 1 5-16 to 1⅜; but from a series of years, covering all kinds of weather, my best results have come from the 1½ spacing.

The accuracy needful in making hives is much more exacting for the supers where sections are used in securing comb honey in marketable shape. A variation of a sixteenth of an inch cannot be tolerated with sections. Suppose our super holds ten rows of sections, as many of the supers now in use do, and we find when the sections are put together they are a thirty-second of an inch over; then we shall be in trouble because they will not go into the super. Again, if not quite large enough, or each of them the same part of an inch too small, we have a space to be filled with propolis, very much at the expense of the appearance of the sections when ready for market. The accuracy necessary for *supers* for *sections* is so important as to be beyond any profit in the making by any carpenter, no matter how skillful he is in the use of tools.

GENERAL CORRESPONDENCE

A SONG OF HONEY

BY GRACE ALLEN

We find among the merry songs of eatables that please,
Full many a lay of curds and whey, of apple pie and cheese—
Of luscious figs and purple grapes, and apples round and red,
Of pies with plums for grasping thumbs: but after all is said,
Is anything better than honey, fragrant, sweet, and sunny,
  Gathered when days are warm and bright by a hundred thousand bees?
Is there anything all your money can buy that is better than honey,
  With the scent of the glowing hearts of flowers and a hint of a woodsey breeze?

Now some may sing of snow-white bread, but brown's the bread for me
Coarse graham flour, and baked an hour, the crust so rich to see;
A taste like nuts in autumn when the leaves are gold and red;
Then bring sweet milk, and honey sweet, for, after all is said,
Is anything better than honey, fragrant, sweet, and sunny,
  Borne by a thousand silken wings through a million laughing beams?
Is there anything all your money can buy that is better than honey,
  With every drop like the taste of food we dreamed in a childhood dream?

Let other rhymsters all the joys of jolly dumplings sing;
No ballad I, of salad, pie, or pudding-sauce shall bring:
But through my days I'll sing the praise of crumbly graham bread
With creamy milk and clover honey; for, after all is said,
Is anything better than honey, fragrant, sweet, and sunny,
  Made by a magic spell and the charm of June's bewitchingest ways?
Is there anything all your money can buy that is better than honey,
  The autumn's precious heritage of summer's fairest days?

THE MINERAL CONSTITUENTS OF HONEY

BY J. A. HEBERLE, B. S.

Condensed from an article by Dr. Fehlman in the Schweizerische Bienenzeitung

To-day, as in old times, honey as a popular remedy is esteemed by old and young. Less valued and too little known is honey as an article of food. As such, for easy assimilation and savor, it stands at the head. We may assume that it was also one of the early foods of mankind, since in the Old Testament the promised land is spoken of as flowing with milk and honey, implying that the best of food was there in abundance.

Pliny, 2000 years ago, called honey the sweetest and most wholesome of juices. "There is no pleasanter or better remedy to save mortals from deadly evils." The ignorance of the general public in regard to honey as food is astonishing. Just as water goes direct into the blood, so does honey, leaving no residue. It is assimilated at once, and changed to energy. For food it is far superior to sugar, which is to-day highly esteemed as food among the sweets. Cane sugar in the stomach, through the gastric juice, must be first inverted—changed to that form of sugar of which honey is principally composed. Honey contains only a small amount of cane sugar. The fact that honey is in the form in which it can be at once assimilated without taxing the digestive power is of great importance. The need of sugar by our body is, as a rule, much greater than is commonly supposed.

The starch we take in our food must first be changed by our digestive apparatus into dextrine and then into sugar—not cane sugar, but dextrose, the principal constituent of honey. From this one fact we might call the sugar in honey physiological sugar. This saving in the digestive power, when we eat honey, is due to the fact that the bees, when they gather nectar, which for the most part is cane sugar, change it to fruit sugar. On account of the importance of invert sugar to our bodies we must con-

clude that honey ought to be consumed in much greater quantity than has been done heretofore.

Besides the sugar in the form in which it is assimilated without any work from our digestive apparatus (and this constitutes the bulk of honey) there is also some albumen in it, in soluble form, readily assimilated. The amount of albumen varies greatly, according to Dr. Fehlmann, whose analysis showed honey from buckwheat and heather is rich in albumen.

Dr. Langer Graz has shown that the albumen in honey reacted as of animal origin. Further investigations will show whether there is any albumen present in nectar; and, if present, whether it is for the same blossoms a somewhat constant quantity; also whether the albumen in honey has only undergone a change, a transformation, or whether the bees add it to the honey during the process of inversion.

MINERAL MATTER IN HONEY.

Besides sugar and albumen in a form to be assimilated, honey contains inorganic elements. The amounts are small, but, notwithstanding this, are very important. Some might think it doubtful that mineral matter could be present in honey, since it is perfectly soluble in water. If honey is burned (oxydized), a residue of a dirty-green color remains that cannot be further destroyed. It represents the inorganic elements contained in the honey. The greenish color is due to the manganese.

IMPORTANCE OF MINERAL MATTER IN OUR FOOD.

The following experiment may be accepted as proof of the necessity of mineral matter for our bodies. If an animal is fed on albumen, fat, and carbohydrates, from which all inorganic elements have been removed, the animal will soon become uneasy, lose appetite, and finally it will get cramps, grow weaker and weaker, and, if the experiment is continued, will die. This above plainly enough that inorganic elements are for the animal body a necessity. Other experiments seem to show that the body endures complete abstinence of food better than the lack of inorganic constituents in the food. The inorganic elements are an important constituent part in the organs and fluids of the body, and for its well being must be present in sufficient quantity. A superabundance seems to do no harm.

INORGANIC ELEMENTS PRESENT IN HONEY.

The animal body requires for its well being the following inorganic elements: Phosphorus, P.; iron, Fe.; calcium, Ca.; magnesium, Mg.; chlorine, Ch.; sodium, Na.; potassium, K.; sulphur, S.; manganese, Mn.; and silicon, Si. As to the importance of manganese and silicon, opinions differ; but both of these elements are present in the ash of the honey. Until recently the inorganic parts in honey had received but little attention. Some are of the opinion that the ground on which the plant grows would influence the amount of inorganic elements in the nectar; for instance, that land with much iron would produce nectar or honey with much iron content. Others hold that certain plants have a special affinity for some of the inorganic elements, and will take these up while they partly or entirely neglect others. We know that the ash of the tobacco-plant contains lithium, Li.; and the ash of the grapevine boron, B.

The above enumerated inorganic elements that the animal body requires *are all found in the ashes of honey of various origin.* The only exception is silicon. Dr. Fehlmann explains that he could with the microscope prove the presence of silicon particles in some of the honey, so it may be that silicon may be present as a mechanical impurity, not an integral part.

THE INORGANIC ELEMENTS PRESENT IN ALL HONEY.

Qualitatively the honey from various parts and various plants showed no difference regarding the mineral constituents; but quantitatively they showed considerable varation. Honey from the Alps showed five times as much ash as honey from buckwheat, while honey from the Black Forest from the fir called *Waldhonig,* a honey-dew honey of vegetable origin, showed even ten times as much ash as buckwheat honey.

It is not known how much of the inorganic elements the human body needs; but a part at least may be supplied by eating honey, which contains these elements in a *readily assimilable* form, and this is very important since only the assimilable forms of the inorganic substances may benefit the body.

IRON.

It is generally known that iron is very important to the human body. It is an important constituent of the red blood corpuscles. Chlorosis is a sign that the body is suffering from a lack of iron. For such persons honey is a very valuable medicine. Why not in such cases eat honey regularly, which supplies the iron in the most assimilable form, instead of artificial iron preparations? Besides iron, manganese seems also to influence favorably the building of blood.

PHOSPHORUS.

Phosphoric acid with calcium is the prin-

cipal constituent of the skeleton, but is also found in the brain and nerves. It is often prescribed in chlorosis and for convalescent persons, especially in preparations which are closely related to the form in which it is present in the brain, as ovalecithin, phytin, glycerin phosphates, etc.

CALCIUM.

Calcium is an important part of the skeleton and teeth, but is also found in the soft tissues of the body, and is probably a necessary part in the protoplasm of most cells. It is continually exchanged, and therefore an indepensable part of our food. Calcium and potassium seem also to influence the work of the heart.

This surely ought to suffice to show the eminent value of honey as food. Sugar, although a valuable food, has no trace of inorganic matter. It consists of carbon, hydrogen, and oxygen only. Considering the excellent qualities of honey, and its moderate price, it should be used far more extensively. It should be on the table instead of syrup, molasses, etc. It should be eaten daily by everybody in small quantities, especially by those with an impaired digestion, convalescent persons, those suffering from anema and chlorosis. Honey is also beneficial to children and aged persons.

HONEY IN REFRIGERATORS

BY R. F. HOLTERMANN

On page 659, Aug. 15, Mr. Louis H. Scholl, and then on page 698, Sept. 1, the editor and Dr. Miller, have something to say about putting honey in the ice-box. I should like to add a little to the discussion.

For years I have said that if one wants to get the best flavor out of honey he should eat it cold. Whenever we have been anxious to create a good impression of our honey I have made a point to have it eaten cold.

One who is in doubt can try this experiment. Warm the honey, and eat it that way; then try it just taken out of the ice-box. In my estimation one has a very peculiar taste who prefers the hot honey. I rarely come across the consumer, in selling honey, but I advise eating it cold.

GRANULATION.

It is the variation in temperature as well as other things that causes granulation. Variation in temperature causes expansion and contraction of the honey; and the movement of the particles tends to granulation (this with me is theory based on speculation from observations and reasoning). Honey keeps liquid longer when the temperature is fairly high; but honey on ice, or kept in the cold, say a freezing temperture, does not granulate rapidly; and varying temperatures with downward dips is probably the most favorable condition for granulation. My advice is, eat honey just out of the ice-box.

Brantford, Canada.

WHY USE HONEY IN COOKING

BY B. KEEP

The great benefits to be gained by the more general use of honey in cooking, more particularly in baking, are not as well known as they should be. Not many cooks possess originality; but once a trial is made in using honey, it would seem that the very great advantages of it in any sort of cake, cookies, crullers, and some kinds of brown bread, should induce further trials.

Where cake is intended to be dry and crisp, no honey should be used, as it confers a tendency to become and to keep moist, and it may be depended on for this effect. Same baked stuff is naturally rather dry and crumbly, and is not "real good" if it is otherwise; but by adding honey this crumbiness is much abated without injuring other characteristic qualities. This applies to corn bread and corn or hominy muffins, molasses cake, etc.

Certain cakes are notably good only when "fresh;" and usually whatever is not consumed at once is wasted. The freshness of such cake can be retained for a day or two longer by adding honey to the ingredients while mixing.

Light honey does not impart any appreciable flavor, so that it can be added in proper measure to almost any recipe where a moist keeping quality is desired, without making any other change, excepting, perchance, to use a little more flour. An excessive addition would be useless and wasteful, and might impart some flavor.

The ordinary recipes produce about an average-sized cake or batch; so it may be safely said, use a cooking spoonful of honey for the ordinary recipe, and more or less in special cases.

There are recipes for honey cakes where the honey is intended to give a flavor. In such cases the honey must have a rather strong flavor, and is used in much larger quantity.

On account of chronic conditions many persons cannot indulge in ordinary sweets. In such cases honey may often be substituted, whereby many things may be eaten without the usual unpleasant effects, and many new combinations may be discovered and enjoyed. Honey on nice ripe strawberries makes a fine combination. Sliced banana with honey is very tasty, and makes a satisfying dessert after a spare meal. Thoroughly ripe currants with honey, crushed in the individual dish by means of a fork, goes very nicely with roast meat. Boiled rice (plain), with a little butter added after the cooking is finished, and honey on the top when served, makes a very acceptable and easily digested evening meal or dessert. In fact, there is no end to the use for honey if one will look about a bit.

Lyndhurst, N. J.

THE BLENDING VALUE OF HONEY IN COOKING

BY RACHEL F. DAHLGREN

Honey and milk (or, still better, honey and cream) cooked or uncooked is an ideal combination. Honey may, therefore, be used to advantage for sweetening ice-creams, gelatine creams, and such delicate blanc-manges as are made with rennet and Irish moss.

Honey combines particularly well with apples, oranges, bananas, peaches, and dried fruits. Cakes made with honey should be allowed to "ripen" for a day or two at least. Honey fruit cakes, hermits, and the like, are better at the end of a fortnight.

Steamed fruit puddings gain greatly in flavor when made with honey instead of molasses. The use of graham or whole-wheat flour in such puddings is recommended.

Bitter almonds, orange, lemon, and fruit flavors generally, blend well with honey, as do also anise, coriander, and other spicy seeds used in cooking.

The small sour wild plums common in many parts of the country make a delicious sweetmeat when preserved in honey. Cook with a very little water until they burst, then remove the stones, add 2 scant cups of honey to 3 cups of fruit, and simmer gently for 20 minutes.

In sweetening delicate custards, cake fillings, etc., with honey, it is best to add the latter immediately before removing them from the fire. Finally, fresh comb honey is the most exquisite food product known to nature; and with fresh brown biscuit, butter, and new milk, it furnishes a meal fit for the gods.

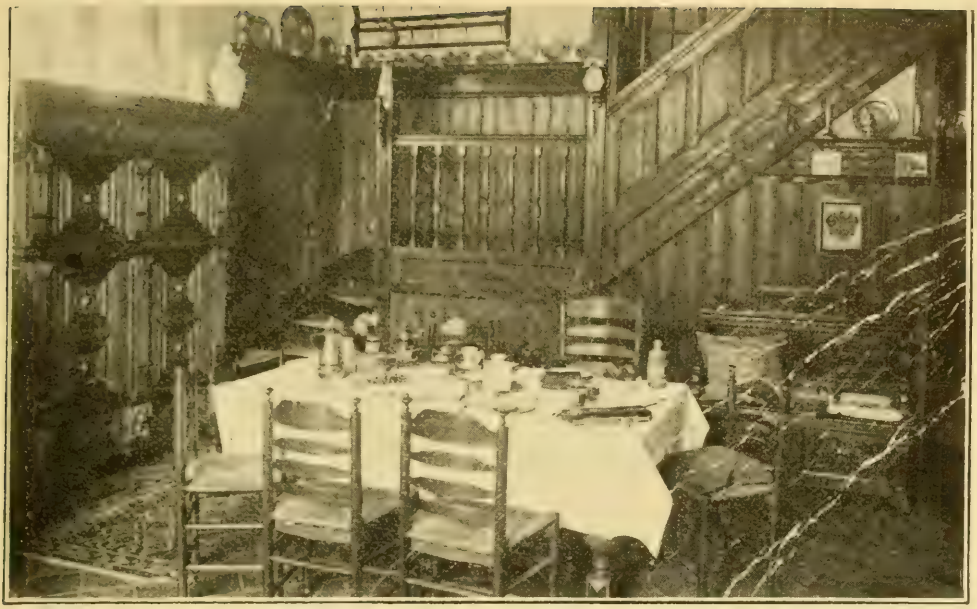
Redding, Ct.

HOW I USE HONEY

BY DR. C. C. MILLER

In lieu of breakfast each morning I have a bowl of weak postum, with cream and honey, and a little oatmeal. I rarely eat the oatmeal—just drink off the liquid. It takes about 1½ ounces of honey, and that amount I've taken every morning for years. I don't take it because I like honey in drink better than sugar. I don't take it because I'm a beekeeper and want to help the honey-market. I take it simply and solely because I want to live as long as I can, and be as well as I can while I do live. And I think it makes a difference worth considering whether I put upon my digestive system the burden of inverting so much cane sugar, or giving it honey which contains sugar ready for direct assimilation.

An ounce and a half a day seems a mere trifle; but let us figure a little upon it. Multiplying by 365 it gives us 547 ounces, or a little more than 34 pounds for a year's supply. Now suppose each of the hundred million of people in the country were to use the same amount. It would take three billion four hundred million (3,400,000,000) pounds. That's no trifle, is it? At 10 cents a pound it would come to $340,000,000. Dr. Phillips says the average annual crop of honey in the United States amounts to at least $20,000,000. That would have to be multiplied by 17 to make it $340,000,000. Plainly, if every one should go on consuming 1½ ounces of honey daily, beekeepers



Characteristic view of a Dutch dining room. Notice that honey in three different forms is shown on the table. Sent by Hans Matthes, Breukelen, Nederland.

would have to increase their output, if not 17 times, at least 10 times.

It would be worth something to increase the demand for honey; but it would be worth a great deal more in the way of the health of the nation if that 1½ ounces of honey could replace a like amount of the something like 4 ounces of sugar consumed daily.

I'm not limited to an ounce and a half for my daily ration. I may use twice as much in the rest of the day, or I may use very little. But I know nothing very definite about the rest of the day, while I do know that 1½ ounces has been my regular morning allowance for years.

I'm not posing as a heavy consumer of honey. I'm not a heavy consumer of any kind of food. At 84, with very little muscular activity, it doesn't take much fuel to stoke the furnace. If I should eat as much as the average, I shouldn't expect to live many days. If I were in young or middle life, with average muscular activity, I hardly think a quarter of a pound of honey daily would be enough. The point I am trying to make is that, if we could by some means get every one to use just a little honey daily, it would make a big difference in the honey-market, and a more important difference in the health of the people.

Marengo, Ill.

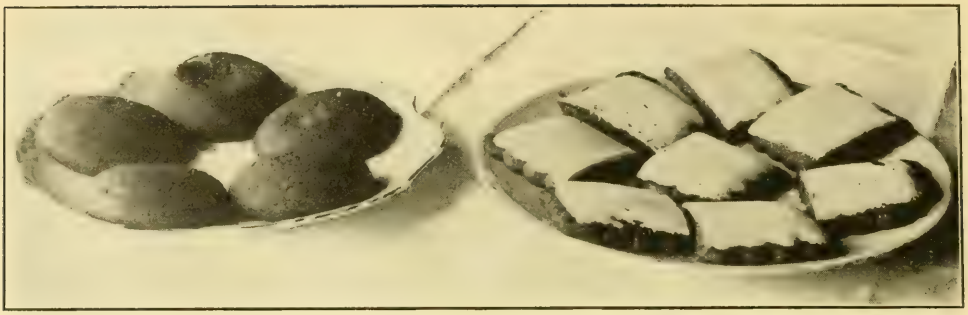
A GOOD PROOF OF THE FOOD VALUE OF HONEY

BY RALEIGH THOMSON

I want to give Mr. Chadwick something to dream about. He says that honey is a luxury, always has been, and always will be. Now I think he is badly mistaken. If honey is a luxury so are butter, eggs, cheese, and many other things that are called a necessity, while honey sells for less than either. Honey is about one price the year round. We sell our honey at 15 cts. for comb and extracted, and we get from 15 to 40 cents for our eggs, and from 20 cts. to 35 cts. for our butter fat, and cheese runs from 20 cts. to 30 cts. When a child asks for something to eat I ask him if he wants bread and butter or bread and honey. Nine out of ten will say honey, and it will not hurt them, either. We have raised six children, and they have all eaten honey. We average one pound per day, and have used it this way for 20 years. The boy weighs 180 lbs., and the five girls will reach the 140 mark each, and we are of a family of small people at that.

Twelve and one-half cents for comb and 5 cts. for extracted honey is not enough.

Underwood, Ind.



The large baking companies use carloads of honey in the manufacture of their cakes and cookies. The frosted and unfrosted honey jumbles may be obtained at almost any grocery.

HONEY RECIPES USED IN COOKING

A Collection of New Recipes for Wholesome and Delicious Dishes as Prepared and Used by Our Readers

HONEY FRITTERS.

One cup sour milk with soda or sweet milk and baking-powder; 2 eggs; ½ cup of honey, extracted; one scant tablespoonful of lard; one scant teaspoonful of salt; flour for stiff batter; fry in deep fat, dipping with teaspoon. Serve with extracted honey, slightly warm.

HONEY TARTS.

Make rich pie crust; cut out the center of two rounds; cut with biscuit-cutter; place one, without cutting, on the bottom; bake light brown; fill with the following: One cup honey, extracted; ½ cup of butter; one whole egg; extract of lemon, or juice of one. Fill just before using, and sprinkle with nuts or whipped cream. This is fine for lunch.

HONEY SHORTCAKE.

One quart flour, 2 teaspoonfuls baking-powder; ¼ teaspoonful of soda; heaping tablespoonful of lard; a little butter. Mix soft with sour milk. Bake in a square cake-tin. Split, and fill with the following: One pint of cream, whipped with a little powdered sugar; one cup honey; white of egg; add a little lemon juice; whip lightly and spread on the cake, spreading first the honey whip, then cream, heaping the cream on top; after first spreading the honey whip, nuts may also be used if liked, and you can omit the lemon, or use with fruit. Tart fruit is best.

FILLING FOR CAKE.

The following is good for cake-filling, and makes nice sandwiches, or may be used as sauce for pudding. It is also fine by leaving out lemon and egg for hot cakes, waffles, or toast softened with little milk or cream.

One heaping tablespoonful of butter; one teaspoonful of lemon juice; white of one egg; one cup honey extracted. Beat the egg very light; add butter; add honey; beat again; then lemon last. Beat hard as you add each ingredient.

HONEY-ROLLS.

Bread sponge for 18 rolls; mix a tablespoonful of lard or butter or half of each, and let it be a generous spoon. Add a little salt; mix as for rolls, and let it rise; then roll each one flat, putting a generous teaspoonful of the following filling in the center of each; fold sides and ends. Pinch well to keep the filling in; let it get light; brush with milk and honey, and bake.

One tablespoonful of butter; one cup of honey; ½ cup chopped nut meats; whip the butter and honey; add nut meats last; sprinkle with nut meats if you wish it extra nice.

M'QUESTON BISCUITS.

Light sponge for fifteen biscuits; one cup of honey, extracted; half a cup of lard; a little salt; mix, and let it get very light. Roll out, and cut with doughnut-cutter. The doughnut-cutter is important in making these. Brush with a little milk and honey; let it get very light, and bake. This is nice for tea.

FAMOUS BISCUITS.

These biscuits are famous when eaten with



Did you ever try honey and cream on "grape nuts"?



An ideal breakfast: Honey on grapefruit; comb honey and cream on shredded wheat; honey cereal coffee.

honey. There are always calls for more.

One full quart flour; one tablespoonful of lard; one teaspoonful salt; ¼ teaspoonful of soda; one heaping teaspoonful of baking-powder; sour milk to mix, not very stiff, but work slightly. Soft flour, soda, baking-powder, and salt all together; work in the lard; make a hole in the center of the flour, and pour in the milk. Mix with a spoon until rather soft dough; work, roll, cut, bake in a quick oven.

Cambria, Wyo. MRS. CHAS. BOWLES.

HONEY GINGERNUTS.

I produce only comb honey, but sometimes there are leaky sections, or in some other way I have a supply of liquid honey on hand. If my family know about it a demand is immediately made for honey gingernut cookies or honey gingernuts, as they call them. They keep indefinitely, and get better the older they are. It is made thus:

One cup each of butter, honey, sugar, and nut meats; one egg; 2 teaspoonfuls of soda; one tablespoonful of ginger. Mix stiff with flour—usually about four cups. Drop by the teaspoonful on a greased pan, and bake in a moderately hot oven.

Keokuk, Ia., Aug. 7. MERTA MITCHELL.

DELICIOUS SQUASH OR PUMPKIN PIE.

One quart or its equivalent of canned pumpkins or squash; one quart new milk; 3 eggs; 1½ cups honey; one cup of sugar; one level teaspoonful cinnamon; 1-3 teaspoonful ginger; 1-3 teaspoonful cloves; ½ nutmeg; 1½ rounding tablespoonfuls flour; one level teaspoonful salt; one large tablespoonful butter. This makes three large pies. The crust should be rich; and the pie is much improved by frosting or covering with sweetened whipped cream. Pie should be baked slowly and well.

Garden City, Mo. MRS. LUCY M. WAGNER.

YANKEE CRULLERS.

Three eggs, one cup of milk, 2 cooking spoonfuls of honey; one cup sugar (more or less to taste); ½ teaspoonful of salt. Mix these all well together, then add 3 teaspoonfuls (heaping) of baking-powder. Sift the baking-powder and flour together into the mix—enough to make a rather soft dough. The mixing should be done with a spoon. The dough should stick to the hand or board, and therefore cannot be worked with the rolling-pin. Flour the board and the hands, and flatten a portion of the dough with the hands. Cook in lard not too hot, but give a little more time.

OLD ORCHARD CORN BREAD.

Three eggs, one pint milk, 2 cooking spoonfuls of honey; 2 large tablespoonfuls of sugar; one large tablespoonful of butter; one level teaspoonful of salt; three teaspoonfuls of baking-powder; 2 parts corn meal to one part flour—enough to make a batter which will drop (but not run) off the spoon. The oven should be moderately hot, and be sure the loaf is baked through.

GRANDMA'S HOMINY MUFFINS.

Two cups cold boiled hominy; 2 eggs; one pint milk, scant; 2 cooking spoonfuls of honey; one level teaspoonful of salt. Mix these all well together thoroughly. Then add 2 heaping teaspoonfuls of baking-powder mixed into corn meal and flour, equal parts, and of this mixture use enough (about two cupfuls) to make like a stiff cake dough. The southern finely ground white corn meal is preferable, as it has a fine flavor. Bake in a rather hot oven to a golden brown. It may be baked in a shallow loaf, but is much better baked in muffin-rings or patty-pans.

B. KEEF.

HONEY MUFFINS.

Half a cup of butter; 3 tablespoonfuls of honey; 2 eggs; 2½ cups of graham flour; ½ cup white flour; 3 teaspoonfuls baking-powder. Add milk to make a thick batter. Cream the butter and honey together, add the eggs well beaten. Mix the baking-powder with the flour, and add to the other ingredients, alternately, with the milk. Bake in a hot oven.

A FRUIT DESSERT.

Equal quantities of peaches, raspberries, and stoned cherries, arranged in layers. Pour over it half a cup of honey and the juice of half a lemon mixed together. Cover, and let it stand for a few hours.

DESSERT FOR DYSPEPTICS.

Rice, ½ cup; white of one egg; 3 tablespoonfuls of honey; half a lemon. Wash the rice through several waters. Sprinkle it into one quart of boiling water, salted. Boil hard for half an hour. Whip the white of the egg stiff; add the honey to it gradually, beating constantly; then add the lemon juice. Strain the rice, and shake dry; and, while still piping hot, add it to the egg-whip, beating well. Turn into a glass dish and serve cold, with cream or without.

Erindale, Ont., Can. JESSIE LEES.

HONEY CRUSTS.

Trim and butter 6 half-silces of stale bread, and arrange them in a buttered baking-dish. Core three large juicy tart apples and halve them crosswise. Lay them on the board; cut side down and fill to overflowing with a mixture of honey and nuts, lightly salted. Bake half an hour, or until the crusts are brown, crisp, and sugary, and the apples brown, tender, and foamy. Serve hot or cold with whipped cream. Butternuts and Brazil nuts are particularly good.

R. F. D.



Honey Rusks, or Sweet Biscuit. Recipe by Rachel F. Dahlgren.

HONEY RUSKS.

Three cupfuls of flour; 2 cupfuls of milk; 1-3 cupful of honey, or more, according to taste; one cake of compressed yeast dissolved in ½ cupful of warm water; ¼ teaspoonful of salt. Mix thoroughly, and set in a warm place to rise. When very light add a beaten egg, 3 tablespoonfuls of melted butter, and flour for a soft dough —about a cupful. Knead lightly, and mold in small biscuits or twists. Raisins, currants, or cardamom seed may be added at discretion. Rub the top with beaten egg; cover, and let it rise again until they double in bulk, and are very light and fluffy. Bake 20 to 25 minutes in a moderate oven, glazing them with sugar and water just before removing from the oven. R. F. D.

A LAXATIVE DRINK.

A very wholesome and refreshing drink is made by dissolving a level teaspoonful of pure cream tartar in a little boiling water, adding a tablespoonful of honey, and filling up the glass with cold water, or hot water where a hot drink is preferred. This is especially good in case of a feverish cold.

R. F. D.

DAFFODIL MERINGUE.

Moisten 2 tablespoonfuls of granulated tapioca with cold water and stir it into a pint of boiling water. Salt lightly, and cook until clear. Beat the yolks of 2 or 3 eggs, and beat in ¾ cupful of honey with 2 tablespoonfuls of lemon juice and one tablespoonful of butter. Add this gradually to the tapioca, and cook over hot water until it thickens—about 20 minutes. Pour into a buttered dish, adding a little candied lemon-peel if you like. Cover with a meringue made of the white of egg beaten with 2 or 3 tablespoonfuls of honey, and bake to a delicate fawn color. R. F. D.

HONEY MOUSSE.

Peel and cut up two oranges, rejecting the white inner skin; soak a teaspoonful of powdered gelatine in a tablespoonful of water. Heat one cupful of thick honey over boiling water. Add the orange and gelatine, and stir for five minutes; then remove it from the fire, and when cold add a pint of thick cream whipped stiff. Pack in ice and coarse salt (equal quantities), and let it stand for three or four hours. Pineapple or other fruit may be used instead of orange. This is easy to make, requires no freezer, and the result is delicious. R. F. D.

FIP TOP LEMON PIE.

Yolks of 3 eggs beaten light; one small cupful of honey; one tablespoonful of flour; juice, flesh, and grated rind of one lemon; one teaspoonful of melted butter. Mix thoroughly in the order given, then add 1¼ cupfuls of rich milk; pour into a pie-plate lined with a good crust, pricked to prevent air blisters, and bake until set. Cover with a meringue of the whites, beaten with 3 tablespoonfuls of honey, and a few drops of lemon juice, and brown lightly.

R. F. D.

[After trying this recipe it seemed to us that it was a little too "wet." We would suggest that only half a cupful of honey be used, and half a lemon. Of course, tastes differ. Perhaps many would prefer the recipe as originally given. We baked the crust separately, and also cooked the filling in a double boiler before putting it in the shell.—ED.]

IVORY CREAM.

One tablespoonful of granulated gelatine; ¾ cupful of honey; 2 cupfuls of milk; one cupful of thin cream; one cupful of peaches or other fruit; ½ teaspoonful of bitter almond. Warm the milk, cream, and honey together, but do not scald them. Add the gelatine, which has been soaked in milk for a few minutes, and the almond extract. Stir till the gelatine is dissolved, and set it in a cold place until it begins to stiffen; then add the peaches, peeled and cut fine. Mix lightly, and pour into a wetted mold. Bananas or canned peaches may be used when the fresh fruit is not in season. Decorated with split almonds, and served with whipped cream, this is a dessert worthy of any occasion.

Redding, Ct. RACHEL F DAHLGREN.

HONEY COOKIES.

Cream half a cup of butter; beat in ¾ of a cup of sugar; one egg and one yolk beaten together; half a cup of strained honey, the grated rind of a lemon, and three cups of flour sifted with four teaspoonfuls of baking-powder. More flour may be required. The dough should be firm enough to be easily handled; knead slightly (a little at a time); roll into a thin sheet, and cut into cakes. Set the shapes in a buttered pan. Beat the white of an egg (left for the purpose) a little, and use it to brush over the cookies in the pan; then at once sprinkle with fine chopped blanched almonds, and dredge with granulated sugar. Bake in a moderate oven. MRS. O. C. HINMAN.

Silver City, N. M.

HONEY COOKIES.

One cup shortening (butter and lard); one cup honey; one cup brown sugar; 2 eggs; one tablespoonful of soda dissolved in 6 tablespoonfuls of sweet milk; 2 tablespoonfuls of vinegar; 2 teaspoonfuls ginger; one teaspoonful salt. Add flour to make a soft dough. Roll thin.

Owosso, Mich. FLORENCE M. GALLAGHER.

HONEY GINGER SNAPS.

Take one pint of honey, one teaspoonful of ginger, and one teaspoonful of soda dissolved in a little water and two eggs. Mix all, and work in all the flour possible. Roll very thin, and bake in a moderately hot oven. Any flavoring extracts can be added as desired.

Fresno, O. LILLIAN PIGMAN.



Honey drop cakes. Recipe by Martha W. Dewees.

HONEY DROP CAKES.

One cup sugar; one cup shortening (½ butter, ½ lard); 1 cup buttermilk or sour cream; 2 tablespoonfuls extracted honey; 2 or 3 eggs well beaten; ¼ teaspoonful soda; one teaspoonful baking-powder; ½ teaspoonful vanilla, orange, or lemon as suits the taste. Flour to make a very stiff batter to drop from a spoon on greased pan, and bake in a moderate oven. These will run together on baking, and must be cut apart with a knife, but are much better than rolled, besides being less trouble. This is a well-tested recipe, and pronounced excellent by all who have tried it.

Barnesville, O. MARTHA W. DEWEES.

[We find that it requires 3½ cups of flour for the drop cakes. This recipe also makes an excellent cake if 2 cups of flour are used and only 2-3 cup shortening.—ED.]

HONEY FRITTERS.

Take 1½ cupfuls of sifted flour; 2 tablespoonfuls honey; 2 teaspoonfuls baking-powder; one egg; ¼ teaspoonful salt; 2-3 cupful milk; 2 tart apples. Mix and sift the dry ingredients and stir into them the beaten egg with which the milk and honey have been mixed. Pare and core the apples; cut into rings or dice, and dip into the batter. Fry in deep hot fat, drain, and sprinkle with pulverized sugar if desired.

HONEY CORNSTARCH PUDDING.

Take 4 cupfuls scalded milk; ¼ teaspoonful salt; 1-3 cup honey; 6½ tablespoonfuls cornstarch. Mix the honey, salt, and cornstarch. Stir in the hot milk gradually, stirring until smooth. Stir and cook over boiling water until the mixture thickens. Cover and cook 15 minutes. Turn into a wet mold; chill, and serve with cream and sugar.



Honey cornstarch pudding. Recipe by Mrs. Harry V. L. Hager.

STEAMED SUET PUDDING.

Take 3 cupfuls sifted flour; ½ teaspoonful nutmeg; 4 teaspoonfuls baking-powder; one teaspoonful cinnamon; 1½ teaspoonfuls salt; ½ teaspoonful ginger; ½ teaspoonful cloves; one cupful finely chopped suet; one cupful milk; one cupful honey; one cupful chopped raisins. Mix and sift the dry ingredients, and add the suet and raisins. Add the honey to the milk, and stir into the dry mixture. Turn into a buttered mold and steam 3 hours. Serve hot with sauce.

COFFEE CAKE.

Take 2¼ cups of sifted flour; 3 tablespoonfuls of honey; 3 teaspoonfuls of baking-powder; 4 tablespoonfuls of butter; ½ teaspoonful of salt; milk; one egg. Mix and sift the dry ingredients and rub in the butter. Beat the eggs; add enough milk to make 1¼ cups, and stir in the honey. Stir the liquid mixture into the dry mixture. Turn out into a shallow buttered pan; brush the top with melted butter; sprinkle with 3 tablespoonfuls of sugar mixed with ½ teaspoonful cinnamon, and bake in a moderate oven.

SCALLOPED APPLES

Take 3 cupfuls soft stale bread-crumbs; ¼ cupful honey; ¼ cupful butter; ¼ teaspoonful grated nutmeg; one quart sliced apples; grated rind, and juice of ½ lemon. Melt butter, and stir lightly into the bread-crumbs. Cover the bottom of the buttered pudding-dish with crumbs, and spread over one-half the apples. Cover with half the honey, nutmeg, lemon juice, and rind mixed together; repeat, cover with the remaining crumbs, and bake 40 minutes in a moderate oven. Cover at first to prevent the crumbs browning too rapidly. Serve with sugar and cream.

NEW ENGLAND PUDDING.

Take one cupful of tapioca; ½ teaspoonful salt; 3 cupfuls boiling water; ½ cup honey; 2 tablespoonfuls butter; 6 tart apples. Soak tapioca in cold water one hour. Mix the soaked tapioca with a little cold water, and stir into boiling salted water. Cook over boiling water until transparent. Pare, halve, and core the apples, and place in a buttered baking dish. Cover with honey and dot with butter. Pour the tapioca over the apples and bake in a moderate oven until the apples are soft. Serve with cream and sugar.

HONEY GINGERBREAD

Take ½ cupful lard or butter; 3 cupfuls sifted flour; ½ cupful hot water; one teaspoonful soda; one cupful molasses; two teaspoonfuls ginger; ½ cupful honey; one teaspoonful cinnamon; 1 egg; ¼ teaspoonful cloves. Melt the fat in the hot water,

and add the molasses, the honey, and the beaten eggs. Add the mixed and sifted dry ingredients and bake in a cool oven.

CORN BREAD.

One cup sifted flour; ½ teaspoonful salt; one cup corn meal; 2 tablespoonfuls melted butter; 3 tablespoonfuls honey; 2 eggs; 3 teaspoonfuls baking-powder; one cup milk. Mix and sift the dry ingredients. Beat the eggs; add the milk, the honey, and the melted butter, and combine with the first mixture. Bake in a shallow pan or muffin tins.



Honey oatmeal cookies. Recipe by Mrs. A. S. Bradley.

HONEY MUFFINS.

Three and one-half cupfuls of sifted flour; 3 tablespoonfuls honey; one teaspoonful salt; 6 tablespoonfuls melted butter; 5 teaspoonfuls baking-powder; 2 eggs; 1½ cupfuls milk. Mix and sift the dry ingredients. Beat the eggs, add the milk, the honey, and the butter, and combine the two mixtures. Put into buttered muffin-tins and bake 20 minutes in a moderate oven.

CORN GRIDDLE-CAKES.

Take 2 cupfuls of corn meal; ¼ cupful of honey; one cupful of sifted flour; 2 eggs; ½ teaspoonful of salt; 2½ cupfuls of milk; three teaspoonfuls of baking-powder; 2 tablespoonful melted butter. Mix and sift the dry ingredients. Beat the eggs, add the milk, the honey, and the melted butter, and combine with the first mixture. Bake on a well-oiled griddle.

HONEY RICE PUDDING.

Take 2 cupfuls boiled rice; ½ cupful honey; 1½ cupfuls milk; ½ cupful raisins; one beaten egg; a pinch of salt and cinnamon. Mix all the ingredients but the cinnamon. Put into a buttered baking-dish; sprinkle with the spice, and bake in a moderate oven until thick and brown . Serve cold.

Johnstown, Pa. MRS. HARRY V. L. HAGAR.

I live on a farm, as many other beekeepers do, and I like to cook with cream instead of butter, as it is much more wholesome, and with honey instead of sugar. So I have to change the cook-book recipes to suit myself.

SALAD DRESSING.

Take yolks of 2 eggs; 2 tablespoonfuls of honey; one tablespoonful of salt; ½ cup olive oil; lemon juice or honey vinegar (weak). Beat together the yolks, honey, and salt. Add a few drops of oil at a time, beating constantly until the oil is all added. Thin down to the desired consistency with lemon juice or weak honey vinegar.

HONEY CANDY.

Take 2 cups of sugar; ¼ cup honey; ¾ cup thick cream. Put the ingredients into a sauce-pan; stir till dissolved, then boil without stirring till a hard ball is formed when tried in cold water. Remove from the fire. Beat till thick; pour into a buttered plate and cut into squares.

HONEY "BROWN BETTY" PUDDING.

Take 4 cups raw apple cut fine; 2 cups bread crumbs; ½ cup each of honey and hot water; 2 teaspoonfuls of butter or cream; cinnamon. Put a layer of the apple in a well buttered pudding-dish; then a layer of crumbs. Mix the honey and hot water. Pour part of it over the crumbs and add a sprinkling of cinnamon, and a few dots of butter or thick cream. Add another layer of apple, and so on until the dish is full, with crumbs on top. Cover, and bake 45 minutes. Eat with sauce of ½ honey and ½ cream.

HONEY OATMEAL COOKIES.

One cup of honey; one of rich sour cream; 2 eggs; 2 cups of rolled oats and 2 cups of flour; one tablespoonful of grated chocolate or cocoa; one teaspoonful of soda; ½ teaspoonful each of cinnamon, cloves, nutmeg, and salt; one cup of chopped raisins; ½ cup of chopped nuts (if desired). Sift the dry ingredients together (except the rolled oats); add all other ingredients. Stir well, and drop by teaspoonfuls in cooky-pans, or bake in gem-pans.

HONEY GINGERBREAD.

One cup honey; ¾ cup rich sour cream; ½ cup molasses; 1½ teaspoonfuls ginger and one teaspoonful each of soda and salt; 3 cups of flour; 2 eggs. Sift the dry ingredients together; add all the rest, and beat well. Bake in a flat pan or in gem-pans.

BAKED APPLES.

Take 6 apples; one cup each of cream and honey Mix the cream and honey. Dig out the core of each apple from one end, leaving the other end closed. Fill the holes with the honey-and-cream mixture. Bake with a little water in the bottom of the pan. Use the rest of the honey-and-cream mixture as a sauce to eat on the apples.

Locke, Wash. MRS. A. S. BRADLEY, JR.

HONEY COOKIES.

One cup of granulated sugar; one cup of boiling water; one cup of lard or butter; one cup of honey; two teaspoonfuls of cinnamon; one teaspoonful ginger; one teaspoonful of soda with enough water to dissolve. Put all the above, except water, in flour, and pour the one cup of boiling water over it and mix it until as stiff as biscuit dough. Roll out thin and cut into cookies, and bake in a quick oven.

Watseka, Ill. MRS. J. H. GILLAN.

For some time we have been using honey in place of molasses, and find it superior. In baking apples we fill the centers with honey, which gives them a finer flavor. One of our neighbors makes her apple jelly with honey, and it is very nice, both in color and flavor.

Served with fresh dewberries and peaches, it makes a delicious dessert, as it imparts a much richer flavor than sugar. We are going to can our peaches with honey this fall.

In making fruit cake, mince meat, gingerbread, plum pudding, and brown bread it is superior to molasses.

Cookies and cake keep moist longer made with honey than with sugar, which is an advantage in this dry climate.

Loma, Col. MISS FORREST BOYD.

Peaches, pears, apricots, prunes, and strawberries are never canned any other way at our house than with honey. Cooking with honey is my hobby, as I am ever experimenting with new recipes.

GRAHAM PUDDING

Take ¼ cup butter; 2-3 cup strained honey; ½ cup milk; one egg; 1½ cups graham flour, ½ teaspoonful soda, one teaspoonful salt; one cup seedless raisins. Melt the butter; add honey, milk, and egg, well beaten; dry ingredients mixed and sifted, and raisins; turn into buttered mold; cover, and steam 2½ hours. Serve with pudding sauce.

CANNING FRUIT WITH HONEY.

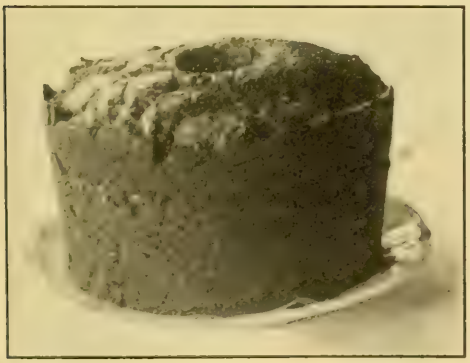
Prepare your fruit as usual for canning, in the way of paring, hulling, etc. Put on to boil. When it is done ready for canning add your honey, about two-thirds as much as you would sugar (this is according to your own taste, as some prefer it sweeter than others). [We have always used the same amount as formerly used of sugar.—ED.] Have your jars ready, clean, and very hot. Now put in your fruit and seal. Be sure to let the fruit just come to the boiling-point. After adding your honey, *do not boil*, as this spoils your fine flavor. Fruit canned thus keeps as well as if not better than by the old method of canning with sugar; and when once tried no other way will be used.

HONEY COOKIES.

Two eggs, half a cup sugar, 2 cups extracted honey, one cup of boiling water in which dissolve a teaspoonful of soda; any flavoring or spice desired. Flour to mix very stiff. Mix in the order given; roll out and bake. These are hard when first baked, but keep in a tight jar or box a few days and they are fine.

HONEY CAKE.

One egg, one cup sugar, one of sour cream; one cup buttermilk; 3 cups extracted honey; one teaspoonful salt; ½ teaspoonful each of ginger, cinnamon, and cloves, one heaping teaspoonful of soda; 3½ cups flour. Mix the egg, sugar, honey, cream, and buttermilk in order given; sift other ingredients with the flour; mix and bake in a pan lined with greased paper in a rather slow oven. The addition of fruit to this makes a fine fruit cake.



Graham pudding. Recipe by Mrs. Homer Cheney.

HOT-WATER HONEY CAKE.

Take ½ cup sugar; one tablespoonful lard; 1½ cupfuls of honey; one teaspoonful of any spice or flavoring desired; ½ teaspoonful salt; 2½ cups flour. Mix in order given, and, lastly, add one cup of boiling water in which dissolve a heaping teaspoonful of soda. Beat well; turn into a well-greased pan and bake in a moderate oven. This is fine, and is a great favorite at our house.

RED-CURRANT JELLY

Stem and clean red currants; heat slowly, and extract the juice. Put back on the stove, after measuring, and let it boil 20 minutes. To every pint of juice add a scant cup of sugar and ½ pint of extracted honey. Let it boil a few minutes till ready to jell, which will be in about ten minutes. You can tell by taking a little out in a sauce-dish and cooling it. Then turn into jelly-glasses, and you have something fine.

New Plymouth, Ida. MRS. HOMER CHENEY.



Apple pudding. Recipe by Iona Fowls.

HONEY HERMITS.

One cup butter; 1½ cups warm honey in which is dissolved a teaspoonful of soda; 3 eggs well beaten; 3 cups flour, one teaspoonful salt, 2 teaspoonfuls cinnamon sifted together; 2¼ cups raisins, chopped, 2¼ cups chopped nut meats. Drop by teaspoonfuls, and bake in a moderate oven.

LEMON CRUMB PIE.

One cup buttered bread crumbs; ½ cup honey; 2 yolks and the white of an egg; pinch of salt; one cup cold water into which is dissolved a tablespoonful of cornstarch, level; juice and rind of one lemon. Fill crust, and bake. When done, cover with meringue.

LADY FINGERS.

Beat together one cup honey, warmed, ½ teaspoonful baking-powder, ½ teaspoonful soda; ½ cup butter; one teaspoonful salt, level; 2 eggs well beaten; 4 cups flour. Cut in little strips; roll in sugar, and bake in a quick oven.

NUT BREAD.

Take 2 compressed yeast cakes; 1-3 cup warm honey; ¾ cup lukewarm scalded milk; 3 cups flour; 2 tablespoonfuls butter; white of an egg, beaten; one cup chopped nuts; 2 teaspoonfuls salt. After dissolving the yeast cakes in the warm milk, stir in a tablespoonful honey and 1½ cups of flour, beating all thoroughly. Then place in a warm place to rise. When light, add the remainder of the honey and flour and the rest of the ingredients. Knead well and place in a greased bowl and let it rise until double in bulk. Then make into a loaf; and, when light enough, bake in a slow oven.

APPLE PUDDING.

Apples sliced fine; ¼ cup honey; cinnamon; butter; one cup rice, cooked for several hours; one egg beaten into the rice; one teaspoonful salt; ½ cup water; 3 or 4 slices bread (crumbed). In the bottom of the pan place a layer of crumbs with dots of butter here and there; then a layer of apples, with honey and cinnamon on top. The third layer is the mixture of rice, egg, and salt. The fourth and fifth layers are a repetition of the first and second. Add ½ cup water and bake in a moderate oven. When done, cover with meringue. [In following

this recipe we used the yolks of two eggs instead of one whole egg, as given, saving the whites for the meringue. Ed.]

APPLE SAUCE CAKE.

Take ½ cup butter; ¾ cup honey if apples are mild; but if the apples are sour, use 1¼ cups honey; ¾ cup apple sauce; one teaspoonful soda; the soda should be well beaten into the sauce; 2 cups flour; ½ cup raisins; one teaspoonful each of cinnamon, cloves, and nutmeg.

Oberlin, O. IONA FOWLS.

CHOCOLATE NOUGATINES.

One cup granulated sugar; 1-3 cup glucose; 1-3 cup extracted honey; piece of paraffin, size of a pea; ¼ cup of water; ¼ teaspoonful of salt; whites of



Chocolate nougatines. Recipe by Frank Quackenbush.

2 eggs beaten dry; one cup English-walnut meats chopped fine; one teaspoonful vanilla; ½ lb. Baker's chocolate. Put the sugar, glucose, honey, paraffin, and water over the fire; stir occasionally, and let it boil to the hard-ball degree. Add the salt to the eggs before beating them, and gradually pour on part of the syrup, beating constantly with an egg-beater. Return the rest of the syrup to the fire, and let it boil until brittle when tested in water. Then gradually turn it on to the eggs, beating constantly. Return the whole to the sauce-pan; set over the fire on an asbestos mat, and beat constantly until it crisps when tested in cold water. Pour into a buttered pan; set it aside to cool; cut in squares, and dip in melted chocolate.

HONEY AND NUT SANDWICHES.

Mix one cup of honey with 2 teaspoonfuls of lemon juice; then stir in enough finely chopped nuts to make a stiff paste; spread on slices of buttered bread.

HONEY CANDY.

One quart honey; 3 heaping tablespoonfuls of butter; 2 tablespoonfuls of vinegar; ½ teaspoonful soda; 2 teaspoonfuls lemon extract. Boil the honey, butter, and vinegar until it hardens when dropped into water; stir in soda and extract; pour into buttered tins to cool.

Hebron, O. FRANK QUACKENBUSH.

STEAMED GRAHAM PUDDING.

Half a cup of honey; one cup raisins; one cup graham; one teaspoonful each of cinnamon, cloves, ground; nutmeg; ½ cup salt; one cup of soda in half a cup of boiling water. Turn in well-greased pudding-pan and steam 1½ hours.

LEMON SAUCE FOR GRAHAM PUDDING.

One lemon rind grated, and juice squeezed on one cup of sugar; one egg and a spoonful of butter; small pinch of salt. Boil, and serve hot.

RICH BLACK FRUIT CAKE.

One pound each of raisins, currants, and butter; 4 eggs; teaspoonful of cinnamon, one cup of sour milk; one teaspoonful cloves, one cup of honey, one teaspoonful nutmeg, 2 cups brown sugar, one teaspoonful allspice; 2 teaspoonfuls soda; flour to make a heavy batter. Bake in a slow oven one hour.

HONEY VINEGAR.

Pour one pint of strained honey in a gallon jug, and fill the jug with clear rain water. Tie cloth over the top, and keep warm.

Durand, Ill. ADDIE WESTBROOK.

BOSTON BAKED BEANS.

Look over one quart of dried beans. Soak them in cold water over night. Drain the water off and put on to parboil, adding hot water and a pinch of soda. When the hull begins to break, drain. Then if you have a bean-pot or roaster pour the beans in it and add a teaspoonful of salt; one tablespoonful of tomato catsup; or, if you prefer mustard, use that. Add three tablespoonfuls of extracted honey. Cover the beans with hot water; season with pepper; then place on top three or four slices of pickled pork or breakfast bacon, and bake in moderate oven three hours or until the beans have taken on a rich brown color.

BAKED SQUASH.

Peel and slice your squash the same as you would large sweet potatoes—say half an inch thick. I use a large granite bread-pan for cooking the squash. Place slices in the bottom of the pan. Dot each slice with a generous piece of butter; strew honey over the squash, say a teaspoonful to each slice; then pour in hot water enough to cover the bottom of the pan. I first start the cooking on top of the range. After it has boiled well for, say, ten to fifteen minutes, turn each slice with a knife, and boil until tender. You may possibly have to add a little more hot water. You can now place the pan in the oven and let the squash take on a delicate brown. Serve at once after removing from the pan.

If you have never eaten baked squash prepared in this way, try it. We prefer it to sweet potatoes, and it is much more easily digested.

Washington, Ind. MRS. S. H. BURTON.

FRUIT CONFECTION.

One pound of dried figs; ½ pound each of dried peaches, prunes, and raisins; one cup of honey; one cup of chopped nuts. Run the fruit through a meat-chopper; mix in the honey and nuts, and knead; press into a form; cut in squares; roll in powdered sugar, and serve.

Phoenix, Ariz. MRS. JENNIE C. GIBSON.

HONEY CAKES.

One quart honey (warm); ¼ lb. butter (warm); one cup sour milk (thick); yolks of 3 eggs; 1 oz. baking-soda; ½ teaspoonful powdered alum; 2½ lbs. flour. Mix, and let stand from two days to two weeks; roll out thin, and bake. Frost, when cold, with pulverized sugar moistened with a little milk.

Council Bluffs, Ia. MRS. J. B. KOUPAL.

SPICE CAKES.

One pint molasses; one pint strained honey; 12 oz. butter and lard; 12 oz. of brown sugar; 1 oz. soda; 1 oz. ginger; 1 oz. cinnamon; ½ oz. cloves; 4 lbs. flour; stir the soda in tablespoonful of milk, and add last.

Watseka, Ill. CLARENCE SCHOLL.

CUCUMBER PICKLES.

Two quarts of small cucumbers; one quart of vinegar; one lemon, one cup of honey (extracted).

Wash and soak the cucumbers in salt water 24 or more hours—½ cup of salt to a gallon of water; then drain, put the vinegar in granite kettle or pan; bring to the boiling-point; add the honey and lemon; grate the rind of it, and put in the vinegar. Then squeeze the juice and add it to the vinegar; also drop in the cucumbers and boil twenty minutes,

stirring them occasionally, then put all in glass jars and seal.

Buckley, Wash. CAROLINE J. SWOPE.

WHOLE-WHEAT BREAD, WHICH CONTAINS ALL THE VITALIZING ELEMENTS OF THE GRAIN.

One quart whole-wheat flour, full measure (may be made ½ graham or 1-3 rye); one pint water (may be made ½ scalded milk, cold. This gives the bread a finer texture, and a flavor which may not please all); one large cooking-spoon (overflowing) of honey; ½ compressed yeast cake, or the equivalent—the more yeast, the quicker the rising; 1½ teaspoonfuls salt, medium-sized spoon, plump measure. Salt has a retarding effect upon fermentation, depending on the relative quantity. Have the water slightly warm in cold weather and cool in hot weather. Dissolve the yeast thoroughly in the water; add the honey; mix well, add the salt, stir until dissolved. A yellow-ware bowl is most convenient. Mix the flour and water perfectly by means of a large cooking-spoon, putting all together at once. The dough should be rather sticky and soft. If the dough is too stiff with the pint of water, more may be added, a teaspoonful or two at a time thoroughly incorporated, until the right consistency is attained. If the bread is wanted rather dry, leave the dough stiffer. Cover closely, keeping in a warm place in cold weather, and *vice versa*. In the morning turn the dough out on the board, and knead into it butter the size of an egg, flouring the board and hands as lightly as possible. The butter may be omitted, but it is a great improvement. Make two loaves in narrow pans; cover, and keep warm to rise. It should about double in bulk. If the dough is not covered closely the surface will dry so as to form a skin. This will cause streaks in the bread. Bake 30 to 35 minutes in an oven not too hot. This bread does not become stale for several days if kept as other bread; but in our house it never has time to get stale or dry.

This recipe is not entirely original; but the addition of graham or rye, and the substitution of honey for sugar, are my own, and have been thoroughly proven. It may be well to add that the bread is not sweet from the use of honey (or sugar) when mixing the flour, water, etc. However, when rye is added, the bread is rather more inclined toward sweetness, probably because the fermentation is not carried forward as rapidly nor so far as to decompose the honey entirely. There is a natural flavor to the whole wheat flour which might be described as "sweet," and it may be that this natural flavor is more noticeable when mixed with rye, which is never sweetened.

I have tried sugar in place of honey, but it has been voted not nearly as good in flavor or texture.

Hoboken, N. J. C. D. CHENEY.



Pears canned without sugar. Only those who regularly use honey in canning and preserving can appreciate the rich flavor and the fresh natural color of the fruit thus prepared. And, best of all, the fruit keeps better than when canned with sugar.

HONEY DROP CAKES

Take 2¾ cups flour; 1 teaspoonful of baking-powder; one tablespoonful baking soda; 2 teaspoonfuls boiling water; one egg; one cup of honey; ½ cup of crab-apple jelly; ½ cup of butter. Cream the butter; add the jelly, and beat well. Dissolve the soda in the boiling water; beat the egg, and add, beating again; then the honey; and, lastly, stir in the flour sifted with the baking-powder. Drop by the teaspoonful on baking sheet, and bake in a slow oven until brown.

HONEY FRUIT BREAD.

Take 4 cups of flour; 1 cup brown sugar; 2 rounding teaspoonfuls of baking-powder; 3 eggs; ½ cup of butter; 5 tablespoonfuls of honey; one cup of mixed candied fruits, cut up; one tablespoonful of candied ginger, cut up; ½ cup of citron, cut up; 4 tablespoonfuls of orange juice; 4 tablespoonfuls milk. Sift the flour and baking-powder together; add the citron, mixed fruits, and ginger; cream the butter and sugar together; add one of the eggs, well beaten, and 3 tablespoonfuls honey, and beat well. Beat the two remaining eggs, and add it with remaining 2 tablespoonfuls of honey, and beat again. Stir in the orange juice; sift the baking-powder with the flour, and add alternately with the fruit, which has been previously dredged with flour. Mix well, and bake in a greased loaf-tin in a slow oven for about an hour.

HONEY GINGER BREAD.

Take ½ cup of butter; one cup of raisins; ¾ cup of honey; ½ cup of chopped citron; ¼ cup of milk; one cup of candied cherries, cut up; 2 eggs; one rounding teaspoonful of baking-powder; ¼ teaspoonful of salt; 5 cups flour; one teaspoonful of ginger. Warm the butter, honey, and milk over a slow fire; cool, and add the well-beaten eggs, the salt, and the ginger. Sift the baking-powder with

the flour; dredge the fruit with flour, and add these alternately. Mix well, and bake in a greased loaf-tin about an hour.

East Orange, N. J. MRS. A. F. ROLF.

HONEY CAKE.

Honey, one cup; ½ cup shortening; I use drippings; one egg; one cup milk, warmed; 2 cups flour; one heaping teaspoonful of soda; ½ teaspoonful cream of tartar; ¼ teaspoonful salt. Sift the flour, soda, cream of tartar, and salt together three times. Stir the honey and shortening to a cream; break the egg in this, and beat thoroughly with spoon; then half the milk and half the flour alternately; beat well each time you add milk or flour. This makes a very soft dough, but is much more delicate so, and is very nice if warmed for luncheon. Bake in a moderate oven ¾ of an hour to an hour.

New Hampton, N. Y. MARY HOWELL.

PRESERVED CANTALOUPE.

Honey, 1 lb.; cantaloupe, 1 lb.; bring the honey to a boiling-point, and drop in the prepared cantaloupe, which should be cut in thin slices.

Bunceton, Mo. J. R. MARYE.

FRUIT SALAD.

Cut one cup each of banana and orange; pit a cup of cherries; stir up with ½ cup of honey, extracted; garnish with slices of comb honey, and serve. Puffed rice, boiled rice, or boiled pearl barley can be added if desired.

Buckley, Wash. CAROLINE J. SWOPE.

PEANUT COOKIES.

One cup chopped peanuts; mix and sift 3 cups of flour, ½ teaspoonful salt, one scant teaspoonful soda, then add a cup of brown sugar, one cup strained honey; then add ¾ cup melted lard, 2 eggs well beaten, ½ cup sour cream, one teaspoonful vanilla; add the nuts. Bake in a moderate oven, dropped from a spoon in a well-greased pan.

Laurel Springs, N. C. MRS. C. A. REEVES.

HONEY PUDDING.

Take a cup of toasted bread crumbs rolled fine; one quart milk; one teaspoonful soda; one cup honey; one cup raisins; half a teaspoonful each of cinnamon and nutmeg; 3 eggs and a small spoonful of butter. Steam or boil from 1½ to 3 hours. Serve with any sauce desired.

Caldwell, Ida. MRS. CECIL LAPPIN.

DELICIOUS BAKED BEANS WITH HONEY.

Cook a quart of navy beans until tender; season with salt and pepper to suit your taste, then put on one heaping tablespoonful of lard and 4 level tablespoonfuls of honey, and bake one hour.

HONEY COOKIES.

One pint thick cream; one pint butter; 3 eggs; 2 teaspoonfuls soda; 3 coffee-cups of honey; flour enough to make stiff enough to handle, being careful not to get too stiff. These are fine, and will keep good for more than a month.

APPLE AND PLUM SAUCE WITH HONEY.

Cook apples well done, and sweeten with honey to suit taste.

Cook plums in a syrup made of equal parts of sugar (granulated) and honey.

Huntington, Ind. MRS. E. H. UPSON.

NORWEGIAN HONEY CAKE.

Take 9 eggs; 1 lb. sugar; 1 lb. honey; ½ teaspoonful baking soda; ¼ lb. or a little more of citron; one teaspoonful cloves; ½ teaspoonful pepper; one teaspoonful ginger; 1 lb. flour. Beat the eggs and sugar well. My cook-book says one hour. Add the honey, which must be slightly warm; then the spices, then the citron cut fine, and, last, the well-sifted flour. The soda can be dissolved in a teaspoonful of warm water, or sifted with the flour. This makes a large cake, and must bake 1½ hours in an oven not too hot. It will keep for months. Grease the pan well.

Fairhope, Ala. MRS. W. A. FERMANN.



Honey doughnuts. Recipe by Julia A. Corbett.

HONEY DOUGHNUTS.

Take 2 eggs; one cup buttermilk; 1 cup sugar; one cup honey; one teaspoonful soda and 2 of cream tartar; butter size of an egg; one teaspoonful vanilla; flour to make stiff enough to roll. The honey added to this recipe makes the doughnuts a delicious brown, and also makes them keep moist for a much longer time.

HONEY-CURED HAM OR BACON.

To 100 lbs. of meat allow 10 lbs. salt, 2 ounces saltpeter, one ounce cayenne pepper, one quart honey, 8 gallons soft water; boil and skim; pour this on the meat when cool. When you hang it up to dry take sufficient honey and ground spices to make a stiff paste. Rub this well into the meat; and, after allowing it to penetrate from 4 to 6 inches, wash off and dry. Hams and bacon cured this way will be found particularly wholesome. I have followed this method for several years with the best results.

Amherst Point, N. S. JULIA A. CORBETT.

HONEY GINGER CAKE.

Heat one cupful of extracted honey, and just before it reaches the boiling-point remove it from fire. Then add a teacupful of thin sour cream, two well-beaten eggs, half a teaspoonful each of salt, ginger, and cinnamon; one heaping teaspoonful of soda, and three scant cupfuls of sifted flour. Beat well, then flour half a cupful of seeded raisins, and stir in lightly. Bake in a moderate oven.

Osceola, Neb. MRS. W. A. CARNINE.

SWEET CUCUMBER PICKLES.

To one quart cucumbers take 2 cups of vinegar, one cup of honey, and a few mixed spices; let come to a boil, then pour over cucumbers and seal.

HONEY DROP COOKIES.

Take 2 cups of brown sugar; ½ cup melted lard; 2 eggs; one cup cold water; ½ cup honey; one cup raisins; one teaspoonful salt; one teaspoonful cloves; two teaspoonfuls cinnamon; two teaspoonfuls soda dissolved in a little cold water; 6 cups flour, or enough to make the dough stiff. Drop by teaspoonfuls on greased tin, and bake in a quick oven.

Fairfax, Ia. MRS. C. F. WIENEKE.

RAISIN HONEY PIE.

Cover a cup of seeded raisins with water, and stew until tender. Add ½ cup of honey, one tablespoonful of butter, one tablespoonful of flour; beaten

yolk of one egg. Pour in pie plates lined with any good pie paste, and bake. Beat the white of the egg to a stiff froth; add ¼ cup of sugar spread over the top of the pie, and return to the oven to brown.

CHOCOLATE HONEY-PIE.

Beat yolks of two eggs and white of one, leaving out one white for meringue; add ½ cup honey; one tablespoonful of grated chocolate; one tablespoonful of butter, ½ cup of sweet milk; one teaspoonful of vanilla, warm; pour into pie-plates lined with good paste, and bake until the paste is brown. These recipes will make one pie each.

Horse Cave, Ky. MRS. C. S. KHEA.

HONEY FILLING

Cream 2 tablespoonfuls of candied honey, and whip together with one cupful of thick cream. Flavor with lemon.

HONEY FROSTING.

Cook 4 tablespoonfuls of thin honey until a ball is formed when dropped into cold water. Pour into it the beaten white of an egg, and whip until cool. Flavor with cocoa or lemon.

SALAD DRESSING.

Beat together one tablespoonful candied honey; 2 tablespoonfuls thick sweet cream; one tablespoonful vinegar; ¼ teaspoonful mustard; pepper and salt to taste—no cooking. This is excellent over salad made from chopped apples and celery.

Waheno, Wis. CECELIA W. GENTZ.

JEWISH HONEY-CAKES.

One cup each of sugar and honey; 4 eggs; 6 cakes chocolate, sweet, grated, or 18 tablespoonfuls ground chocolate; 3 cups flour; 2 teaspoonfuls baking-powder; one tablespoonful cinnamon; one teaspoonful cloves; very little allspice and vanilla. Cook in a thin layer, and cut in squares.

Ventura, Cal. FLORA MCINTYRE.

SANATORIUM GEMS.

Take 2 eggs, 2 cups sweet milk, ¼ teaspoonful salt, 2 cups entire-wheat flour. Beat very thoroughly; stand it on hot stove in gem-pans to brown the bottom for about five minutes; then bake in a good even oven for forty minutes.

Take 2 cups extracted honey, ½ cup mashed red raspberries. Let it come to a boil, and eat on the hot buttered gems.

We enjoy our honey in many ways prepared as in recipe, and eaten on plain ice-cream. The children call it honey sundae.

Lockport, N. Y. MRS. M. E. NEWMAN.

LADYFINGER DOUGHNUTS.

Beat 2 eggs light; sift into one cup of flour one heaping teaspoonful of baking-powder; three rounding teaspoonfuls of crisco; then melt one medium sized cup of extracted honey; one level teaspoonful of soda dissolved in 2 tablespoonfuls of sour milk. Flavor to suit taste. Add sufficient flour for as soft a dough as can be rolled, and cut in strip ½ to ¾ inch, and 3 to 4 inches long. Fry in crisco. These fingers usually turn themselves when cooked on one side if cut the right size.

Boulogne, Fla. MRS. H. E. KILBURY.

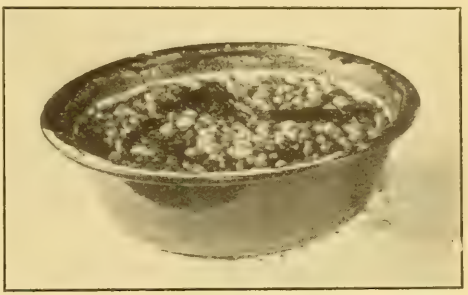
CANNED PICKLES.

Put small even-sized pickles in salt for 24 hours. Then pack in glass or stone jars as closely as possible. Slice thinly a small quantity of horseradish root, and put a little in each can; also a small pinch of dill and mustard seed in the top of the can. Put the jars in a pan of cold water, first putting a folded cloth beneath the jars to prevent breaking, and place all on the stove to heat. In a granite kettle put enough cider or honey vinegar to cover the pickles. Season the vinegar with red and black pepper. Use from 4 to 8 tablespoonfuls of extracted honey to each quart of vinegar. Allow the honey, pepper, and vinegar to come to a boil; pour over the pickles. In ten minutes pour back into the kettle to boil again; fill the cans again with the vinegar, and seal hot. It is easy to pour the vinegar out without the pickles coming out if they have been closely packed. Any of the things except vinegar, honey, and pepper may be omitted if any are disliked or not obtainable.

NEW GINGERBREAD.

One cup of extracted honey; a tablespoonful of melted butter; one tablespoonful of ginger; yolk of an egg beaten together, to which add a teaspoonful of soda dissolved in ½ cup of buttermilk; then 1½ cups of flour. Lastly, the white of an egg beaten stiff. Bake in a quick oven to a light brown.

Cora, Mo. MRS. MARY TROYER.



Honey baked beans. Recipe by Rose A. Hambly.

HONEY BAKED BEANS.

Soak over night one pint of small white beans. Bring to a boil, adding baking-soda the size of a bean, and allow to simmer for half an hour. Drain, and cook till tender in salted water, but not long enough to break the skins. Drain and rinse the beans, and put them in an earthen bean-pot. Pour over them a pint of milk, adding a tablespoonful of butter, 2 tablespoonfuls honey, and a pinch of cayenne pepper. Cover closely, and bake in a slow oven till the milk is absorbed.

HONEY RICE PUDDING.

One cupful boiled rice (any cooked cereal may be used), one pint of milk; 2 eggs; a pinch of salt; one teaspoonful butter; half cupful honey. Bake, and serve hot or cold.

Rose Isle, Manitoba. ROSE A. HAMBLY.

CUSHSHAWS, OR POTATO PUMPKIN, COOKED WITH HONEY.

Wash the outside of the pumpkin clean; then cut it into pieces about three inches square, and place in a preserving-kettle of about one gallon capacity, with one teacupful of water and 1½ or 2 teacupfuls of honey. Let it cook slowly till the water and honey become a thick syrup, and the pumpkin well done and candied.

This is delicious, hot or cold, and a dish which my family is very fond of.

Millett, Tex. MRS. J. J. SOSSAMAN.

HONEY MINCE MEAT.

One bowl of meat chopped fine; and two bowls of apples. Add spice of all kinds to taste, and raisins and currants in abundance; vinegar, one cup, and sweeten with honey. Cook until tender. If you have more than you wish to use at once, can in Mason jars. The longer you keep it the better it will be.

HONEY BREAD

I take the water off from the potatoes at noon and put two or three potatoes through the ricer into the water. When it cools I put a yeast cake in the

water and let it set until toward night. I then stir it up pretty stiff and keep it warm. In the morning I add a tablespoonful of salt, two tablespoonfuls of lard and two or three tablespoonfuls of honey; then mix it stiff with flour and keep in a warm place. Mix down when light; and, when light again, make it into loaves; and, when light again, bake for an hour in a good oven. The honey keeps the bread moist, and improves the flavor.

Carpinteria, Cal. MRS. A. L. DUPRAY.

SWEET-POTATO PUDDING.

One quart of grated sweet-potato; 2 well-beaten eggs; ¾ cupful of honey; 1½ cupfuls of rich milk; 2 rounding tablespoonfuls of flour; nutmeg and cinnamon to suit the taste. Rub the potato through the food chopper using the medium knife. Mix well with the other ingredients and pour into a well-greased pan. Bake for about one hour in a moderate oven, stirring occasionally. Serve hot with hard sauce. It is also very good cold.

HONEY FOR BURNS.

Make a paste of honey and soda. Spread on the burn, cover with cotton and cloths. The pain is quickly relieved. Of course this is not for serious burns, but it is an excellent remedy for those painful little accidents which befall even the most careful person.

Concord, Tenn. MISS DAISY F. RULE.

BROWN BREAD.

Take 2 cups buttermilk; ½ cup each of dark honey, cornmeal, and white flour; 2 cups graham flour; 2 teaspoonfuls soda; one teaspoonful salt. Add raisins, currants, or dates. Bake 20 to 25 minutes.

San Jacinto, Cal. A. K. WHIDDEN.

HONEY RICE PUDDING.

Bake 3 quarts of milk and one cup of rice in a slow oven for about 3 hours, stirring occasionally. When partly done add salt, one cup of raisins, and sweeten to taste with honey. Add more milk if pudding seems too thick. A delicious pudding.

HONEY HERMITS.

Two cups dark honey, ½ cup molasses, ½ cup water (warm), 1½ level tablespoonfuls soda, 2 teaspoonfuls salt, 6 tablespoonfuls melted shortening, 1 cup seedless raisins. Flavor with vanilla. Stir very stiff with flour (about all you can stir into it). Drop by spoonfuls on well-greased tins, and bake in slow oven as they scorch easily.

HONEY CUCUMBER PICKLES.

Soak small cucumbers in weak brine over night. Boil a mixture of 2 cups vinegar, 1 cup water, 1 cup dark honey, 2 teaspoonfuls cinnamon, 1 teaspoonful allspice or cloves. Put pickles in jar and pour hot mixture over them and seal. Recipe for one quart. Pickles do not wilt.

Battle Creek, Mich. MRS. CHAS. A. JOHNSON.

HONEY COOKIES.

Melt ½ cup of extracted honey; add 2 well-beaten eggs; ½ cup of molasses or syrup; one cup of thick sour cream; a teaspoonful of soda; ½ teaspoonful each of ginger and cinnamon; a pinch of salt, and flour to roll; cut out and bake in hot oven.

Osceola, Neb. MRS. W. A. CARNINE.

TO PREVENT GRAPE JELLY CANDYING.

Add 2 tablespoonfuls extracted honey to 1 lb. of jelly. Let it boil two minutes longer, then fill your jelly glasses.

COOKIES.

One cup extracted honey; one cup light-brown sugar; 2 eggs well beaten; a level tablespoonful of soda dissolved in 3 tablespoonfuls of vinegar; pinch of salt; flour to stiffen (about 3 cupfuls in this altitude). Mix at night, and bake in the morning.

HONEY BROWN BREAD.

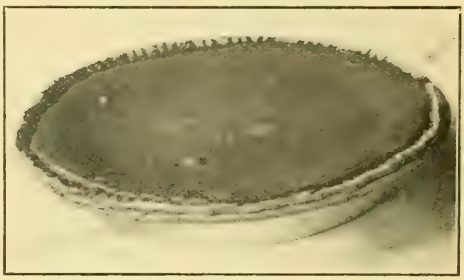
Take 2 eggs, beaten very light; one cup honey, white or dark; 3 cups sour milk; 2 large cups of white flour; 3 large cups graham flour; 3 teaspoonfuls soda, level, sifted in flour; one teaspoonful salt. Bake in a rather slow oven 45 minutes or more. This will make 2 loaves, and keeps moist and soft a long time.

Osceola, Wis. L. W. CHATFIELD.

APPLE HONEY PUDDING.

Bread crumbs, 1½ cups; 2 beaten eggs; 1-3 cup extracted honey; ¾ teaspoonful soda; 2 medium-sized apples chopped rather fine. Mix, and add ¾ cup of water. Bake until firm in the center, about 20 minutes. Keep covered until the last few minutes. Turn out on plate, and serve with whipped cream sweetened with a little slightly warmed honey. Enough for four persons. Good warm or cold.

Glenn, Cal. MRS. S. C. DAVIS.



Pumpkin pie. Recipe by Mrs. C. A. Smith.

I have kept bees over thirty years, and have used honey more or less in my cooking, and can sya that I fully appreciate its value. Where honey is used, the baked goods do not get dry and hard, and that last used is really better and more moist then when first baked. In any recipe that calls for New Orleans molasses, honey can be substituted, and is much better and more wholesome. I substitute honey molasses in mince pies, and find they are much nicer.

PUMPKIN PIES.

Sifted pumpkin, 2 cups; sugar and honey, one cup each; flour, 4 tablespoonfuls; ginger, 2 teaspoonfuls; cinnamon, one teaspoonful. Add milk with all its cream—enough for two pies. Jersey milk is best.

[When making this pie, we modified the recipe as follows: we used only 2-3 cup sugar and made the addition of two eggs (four would be better, perhaps). We found that 4 cups of milk were required.—ED.]

GINGER CAKE.

Honey, 2-3 cup; sugar, ½ cup; one egg; buttermilk, one cup; soda, 1¼ teaspoonfuls; butter, ½ cup; flour, 2½ cups. Bake in a dripping-pan.

CREAM COOKIES.

Sugar, one cup; honey, ½ cup; one egg; sour cream, one cup; melted butter, 1-3 cup; soda, one teaspoonful; baking-powder, one teaspoonful; flavor with nutmeg or vanilla; flour enough to roll nicely, but not too hard a dough, for that spoils them.

GINGER COOKIES.

Sugar, one cup; honey, 2-3 cup; one egg; sour cream, one cup; melted butter, ½ cup; one teaspoonful each of soda and baking-powder; 2 teaspoonfuls of ginger; one of cinnamon; flour enough to roll.

Everett, O. MRS. C. A. SMITH.

PLUM PUDDING.

Sifted flour, 3 cups; eggs, 3; sugar, 2-3 cup; honey, ½ cup; milk, ½ pint; finely chopped suet, one large cup; English currants and raisins, each one cup; mace, cloves, and cinnamon, ½ teaspoonful each, or to taste; baking-powder, 3 teaspoonfuls. Steam 3 hours.

PUDDING SAUCE.

Sugar, 2 cups, dissolved in boiling water; ½ pint cornstarch, 2 tablespoonfuls worked smooth in cold water, one cup, and stirred into the boiling sugar with nice butter the size of an egg. Boil until clear. Remove from the stove and add half a cup of honey. Flavor with vanilla.

Everett, O. MRS. C. A. SMITH.

Fruit cookies are made the same as the above by adding one cup of shortening, one cup of chopped raisins; ¼ teaspoonful of cinnamon and allspice; ⅛ teaspoonful cloves and nutmeg; cream sugar and shortening, and proceed as above.

Colo, Iowa. MRS. OSCAR TRIPP.

INDIAN MEAL PUDDING.

Scald 2 quarts of sweet skim milk; add 2 cups of corn meal. Remove it from the stove, and add ½ pound honey; ½ cup raisins; one egg; butter the size of an egg; 2 teaspoonfuls of cinnamon; one teaspoonful of salt. Bake two hours. Stir it up every half-hour until done.

S. Shaftsbury, Vt. MRS. GEO. E. MATTISON.

HONEY YEAST.

One pint plain potato water; one tablespoonful honey; 2 tablespoonfuls yeast. Set in a warm place, and in a few minutes it will be up and ready to mix with or to be set away, and it will keep many days in a cool place.

In fact, the yeast-plant will act much more readily in yeast sweetened with honey, and keeps a much longer time than when sweetened with any kind of sugar.

Kanab, Utah. MRS. ISRAEL HEATON.

HONEY COOKIES.

Blend ½ cup honey, one teaspoonful butter; one egg beaten light; ½ teaspoonful baking-powder; pinch of salt; flour to make a stiff drop in buttered tins. Bake in a slow oven.

CHOCOLATE HONEY TAFFY.

One cup strained honey; 1-3 cup sugar; one piece of chocolate an inch square. Boil until it makes a soft ball in cold water. Add one teaspoonful vanilla. Put into a buttered dish to cool. Pull until light.

PLAIN HONEY TAFFY.

Two cups honey; ½ cup sugar. Boil until it makes a soft ball in cold water. Add one teaspoonful vanilla. Put in a buttered dish to cool, and pull until light. If the pan that the honey taffy is cooked in is buttered around the top the honey will not boil over on the stove.

HONEY JELLY.

To one cup fruit-juice add one cup honey. Boil from 15 to 20 minutes. [We find that one must be careful in the boiling, otherwise the jelly will have a slight burnt-honey taste.—ED.]

Wheatland, Wyo. BARBARA E. HARTER.

WEDDING CAKE.

One cup each of extracted honey, butter, New Orleans molasses; 3 eggs well beaten; ½ cup strong coffee; one cup buttermilk; 2 teaspoonfuls soda dissolved in 1-3 cup boiling water; one grated nutmeg; 2 teaspoonfuls cinnamon; one teaspoonful cloves; one cup strawberry preserves; two pounds raisins, seeded; 2 lbs. currants; ½ lb. citron; ½ lb. candied lemon peel; ½ lb. candied orange peel; 6 cups flour. Mix in order given. Bake one hour.

Mankato, Minn. MRS. W. W. RUSSEL

HONEY SANDWICH CAKE.

Take 1½ cups flour; one cup honey; 2 eggs, 2 oz. butter; 1½ teaspoonfuls baking-powder; one teaspoonful of cinnamon, cream, butter, and honey; sift in half the flour; add the eggs, beaten up; also the remaining flour and cinnamon. When ready for the oven, add the baking-powder. Bake in two layers; and, when cold, spread granulated honey between them. Bake each layer 25 minutes in a moderate oven. MRS. A. S. ASHTON.

Beauharnois, Quebec, Canada.

HONEY HERMITS.

Take 1-3 cupful of butter, 1 1-3 cupfuls extracted honey, ½ cupful milk, 2 eggs, 2 level teaspoonfuls baking-powder, ½ level teaspoonful salt, one cupful raisins, chopped; ½ teaspoonful nutmeg and cinnamon; about 2¼ cupfuls of flour. Melt the butter; add the honey and beaten eggs; mix, add salt, spice, milk, baking-powder, flour (gradually), and beat well. Stir in raisins, floured. Drop from a teaspoon in small rounds on a buttered tin. Bake in a quick oven until brown.

HONEY CUSTARD.

Take 4 eggs, well beaten; one cupful extracted honey; 4 cupfuls sweet milk. Mix thoroughly; sprinkle nutmeg on top, and bake 30 minutes. Number served, 9 persons.

Chippewa Falls, Wis. MRS. JOHN SHAFER.



Ginger drop cakes. Recipe by M. I. Jeffrey.

GINGER DROP CAKES.

One cup each of dark honey, sugar, and lard; ¾ cup sweet milk; one egg; one tablespoonful ginger; ½ teaspoonful salt; one teaspoonful (rounded) soda in a little hot water. Flour to make the batter stiff enough to drop from spoon.

Bethesda, O. M. I. JEFFREY.

FRUIT SALAD DRESSING.

Yolks of two eggs; ½ cup honey; 2 tablespoonfuls flour; one tablespoonful sugar; ½ cup cream whipped. Mix flour and sugar; stir in honey and juice of two lemons.

Fleming, Ohio. MRS. WM. JONES.

HONEY CANDY.

Take 2 cups extracted honey; one cup white sugar; 3 tablespoonfuls water; stir all together. Boil until it will harden when dropped in cold water. Turn out into buttered tin to cool partly. Then pull like molasses candy.

HONEY COOKIES.

One egg, one cup sour cream; ½ cup sugar; one cup extracted honey; 3 tablespoonfuls butter; one teaspoonful cream tartar; one teaspoonful soda. Add flour enough to roll out and handle nicely to make them soft. Bake in a moderate oven.

SUBSCRIBER.

HONEY APPLE MARMALADE.

Cook tart apples until smooth; add 1 lb. of honey to 2 lbs. of fruit. Cook until about like cake batter. Then put into crocks or jars without sealing. It will cut out in a few weeks.

POPCORN BALLS.

Pop a few ears of popcorn, and have ready in large dish. Boil a quart of honey until it will crack. Let it partly cool; then pour over a dish of popcorn, and make into balls.

Laurel Springs, N. C. MRS. J. T. REEVES.

GINGERBREAD.

Take 3 eggs; one cup sugar; one cup butter; one cup honey, one cup sour milk; 3 cups flour; 2 heaping teaspoonfuls of ginger; 2 teaspoonfuls of cinnamon; one teaspoonful of cloves if you like; one teaspoonful of soda.

Sayers, Tex. MRS. ANNIE WOODWARD.

HONEY-DROP COOKIES.

Beat together 2 eggs and one cup of honey, ½ cup of butter, 1½ cups of flour, one teaspoonful baking-powder; 1½ teaspoonfuls caraway seeds. Drop with a spoon in a butter-tin. Bake till brown.

HONEY WAFFLES.

Cream together one egg well beaten, 2-3 cup of butter, one cup of honey, 1½ teaspoonfuls of baking-powder, one tablespoonful vanilla; flour to make quite stiff. Roll thin. Bake brown.

North Ferrisburg, Vt. MRS. A. C. PALMER.

HONEY ICE CREAM.

One quart of fresh cream; one cup honey. Mix well, and freeze. No flavoring is required—delicious.

State River, Ont., Can. JAMES M. MUNRO.

TOMATO PRESERVES.

Take 3 lbs. honey, 6 of tomatoes, and cook.

Stanton, N. D. MRS. M. M. OLDS.

HONEY VINEGAR.

I find that honey makes excellent vinegar. I usually use the water I dip my capping-knife in, which makes it sweet enough. If the water is boiled, there is no difficulty in making vinegar in a short time if you have a good vinegar body, sometimes known as "mother," to start it.

HONEY YEAST.

Save a start of fresh potato yeast; stir it thick with honey. I usually save part of a teacupful of the old-fashioned potato yeast, and stir in honey enough to make a syrup. This will keep sweet for days in warm weather, and comes in very handy in warm weather when yeast cakes cannot be obtained.

PLUM AND CHERRY PRESERVES.

I find, also, in using sour plums for preserves it is better than sugar, using 1 lb. of plums to one of honey. Let the honey come to a boil, then put the fruit in and boil hard. Skim when needed, till done.

Wild-ground-cherry preserves are nice made the same way. Many people prefer the honey flavor to that of sugar.

HONEY MINCEMEAT.

Honey used in mincemeat is preferable to sugar, and I like it better than molasses with any recipe I ever used. Take one gallon of fresh meat, chopped fine; one gallon apples peeled, cored, and chopped fine; 1 lb. raisins; 1 lb. of currants; cinnamon to taste; black pepper to taste; a few cloves and allspice; one quart of vinegar, if good and sour (more if not); honey enough to make it as sweet as desired. I make any amount of this late in the fall, and fill what empty fruit-jars I have; and it is always ready for use as long as it lasts. The jars do not need to be sealed.

CHOW-CHOW.

One gallon salt cucumbers; ½ gallon green tomatoes; ½ gallon cabbage; ¼ gallon strong winter onions (measured after chopping). I usually run all separate through a food-chopper, using the coarsest knife, then mix them and let them stand over night. In the morning, place them in a colander and let drain until all the juice has run off. Place in a kettle (granite ware preferred); cover with vinegar. Let it come to a boil; add tumeric, mustard, black pepper, cinnamon, allspice, cloves to taste. Add a pint of honey, and boil an hour. Place it in a jar or small keg, with a cloth, board, and weight, to keep the vegetables under the vinegar. Do not cover with a weight till the chow is cool. Made in this way in the fall it will keep till warm weather. Then scald and place in fruit-jars and seal for summer use.

If fresh cucumbers were used, sprinkle a handful of salt over the vegetables and let it stand.

HONEY COOKIES.

Take 3 eggs, well beaten; ½ lb. of butter or other shortening; one pint of honey; lemon, or nutmeg to flavor; one small cup of milk; stir all together. Two teaspoonfuls of baking-powder; flour or graham enough to make a nice dough. Roll thin and cut with a biscuit-cutter. Place in a buttered dripper, and cook in a hot oven. In using graham use ⅛ flour.

Hankville, Utah. MRS. J. H. NOYES.

EAST INDIAN PUDDING.

This is one of the most delicious desserts in which honey is used. To make it, soak three cupfuls of fine bread crumbs in two cupfuls of cold water for five minutes. Drain off the water and press the crumbs until they are almost dry; then mix thoroughly with one tablespoonful of butter, one-quarter of a teaspoonful of salt, five egg yolks, four tablespoonfuls of honey, one-half teaspoonful of powdered cinnamon and one-half cupful of raisins. When the ingredients have been well mixed add the beaten whites of the eggs flavored with one-half teaspoonful of grated lemon peel. Bake in an earthenware dish for twenty-five minutes.—Courtesy *Mother's Magazine*.

HONEY CORNBREAD.

Thoroughly mix two pounds of cornmeal and one-quarter pound of flour and add four cupfuls of boiling water. Stir briskly for three minutes; set aside and to two well-beaten eggs add two teaspoonfuls of honey, two teaspoonfuls of salt, one tablespoonful of melted butter, one and one-half cupfuls of lukewarm yeast mixture. When thoroughly mixed stir into the flour and meal and continue the stirring for half an hour. Pour into a well-greased, deep baking pan, cover with a piece of paper and set in a warm place for two hours to rise. Then remove the paper and bake in a moderate oven until the top is a golden brown. This bread should be served hot, but any that is left over can be made as good as when fresh by reheating in the oven.—Courtesy *Mother's Magazine*.

HONEY RICE PUDDING.

Wash and carefully clean one-half cupful of rice. Put in a deep baking-dish and stir in one and one-half cupfuls of milk, four tablespoonfuls of honey, one-half teaspoonful of salt and one tablespoonful of finely chopped lemon peel. Bake in a moderate oven for two hours. Stir frequently during the first hour and a half of baking. Serve cold with milk or cream.—Courtesy *Mother's Magazine*.

BREAD PUDDING.

Toast very slightly six slices of stale bread. Cut each slice into six small squares. Butter the squares and with them cover the bottom of a well-greased baking dish. Sprinkle in a few raisins and dust lightly with cinnamon. Put in another layer of

bread and more raisins and cinnamon and continue until all of the bread is used up. Make a custard of one cupful of milk, three tablespoonfuls of honey, and a pinch of salt. Bring to the boiling-point in a double boiler and stir in two well-beaten eggs. Remove from fire and continue stirring until cool. Pour the custard over the bread and bake in a moderate oven for half an hour.—Courtesy *Mother's Magazine*.

HONEY TAPIOCA.

Into a double boiler put two tablespoonfuls of fine tapioca and one cupful of milk. Cook until the tapioca is transparent, stirring constantly. Then add the yolks of two eggs, well beaten and sweetened with two tablespoonfuls of honey, and seasoned with one-quarter of a teaspoonful of salt. Stir the mixture until it has thickened; then add the beaten whites of the eggs and continue the stirring for three minutes longer. Remove from the fire and when cool stir in one teaspoonful of vanilla extract. Serve cold.—Courtesy *Mother's Magazine*.

EGGLESS CAKE.

One cup honey, ½ cup sugar; ½ cup butter; one teaspoonful saleratus; one teaspoonful ginger; flour. Dissolve the saleratus in a little water, and add flour enough to thicken.

Willowemoc, N. Y. MRS. MARVIN S. STEWART.

PLUM BUTTER.

Two quarts of plums; 3 cups of extracted honey; or two of honey and one of sugar, if you like. Very good.

Columbus, Ohio. MRS. B. F. FRAVEL.

HONEY-CURED MEAT.

In attempting to apply a dry "sugar cure" to meat we always experienced this difficulty: When meat has lain long enough for all the animal heat to get out, the surface has a firm dry glaze of tissue to which it is very difficult to get any dry mixture to stick. Even where the salt is "piled on" it often fails to "connect" with the meat under the glaze. Somewhere I got the suggestion to use New Orleans molasses instead of sugar, and we tried it one year with good results; but the next butchering time found me with no molasses on hand, but plenty of honey; and as I had "read in the books" of the preservative effect of honey I decided to "try it on the hog." Since that time we have never changed our "process," and never had a single piece of meat that was not A1. I have had it "sampled" at farmers' institutes, and by visitors at my home, and the verdict always is: "Fine—best I ever tasted," etc. Here is the whole process:

Let meat get thoroughly cooled out, but not frozen. Trim shoulders so there will be no "flap" to hang against the leg piece. Take one piece at a time in a dishpan, and apply a coating of honey. This may be done either with the hand or a swab; but care should be taken to rub it into every part of the surface, skin as well as flesh side, and also well in around the bone at the hock end (we generally saw off about four inches of the shank and use it while it's fresh). The pieces are then handed to another, who applies as much of the following mixture as will stick to the honey: 5 lbs. salt; 2 oz. black pepper; 1 oz. cayenne pepper. Saltpeter may be added if liked, but we do not like it nor consider it wholesome.

Generally with us at the end of about three weeks it may then be hung and smoked, and that is all there is to it; but with very large meat, or if some pieces show "fresh-looking" places, it gets a second application. This is seldom necessary or desirable in this climate, as the meat is apt to get too much salt to taste good; but in a more humid climate it would probably be well to give a second application to all but one or two pieces. If they keep "just as well" you will know it is not necessary for you.

Last spring we put down a barrel of "corned beef," the pickle for which was made with salt, honey, and pepper as above, and we know that it is the finest kind of eating. Strips for dried beef were also dipped in this pickle while boiling for about ten minutes, and then hung up to dry.

North Platte, Neb. LOUIS MACEY.

GINGERBREAD.

One cup of honey and one of shortening; ½ cup sour milk; one teaspoonful soda; one teaspoonful of ginger, and enough flour to roll out nicely. When done, take the white of one egg and make a frosting.

Fayette, Ia. H. B. MORRISON.

MRS. A. H. S., Vienna, Va.—We use honey to make Amana Colony honey cookies, as follows: Let one pint of honey (extracted) come to a boil; let cool a little, then add 2 well-beaten eggs, ½ pound of sugar, ½ pound of almonds or other nuts, 10 cents' worth of citron chopped fine, 1 teaspoonful of cinnamon, ½ teaspoonful of cloves, 1½ even tablespoonfuls saleratus; stir thoroughly and add enough flour to make a stiff dough. Cut in fancy shapes and bake in a moderate oven; frost if desired. If the above recipe be carefully followed, I am sure it will be found satisfactory.—Courtesy *Practical Farmer*

HONEY BREAKFAST TOAST.

Beat 1 egg until light, add a pinch of salt, 2 tablespoonfuls of honey and 1 cupful of milk. Into this dip half slices of stale bread; brown quickly on both sides in hot butter or oil; serve with butter or honey.—Courtesy *Practical Farmer*.

GINGERBREAD NUTS.

Put 1 pound of brown sugar, 1 pound honey and grated rind of half a lemon in a saucepan over the fire and let it simmer well together. Remove from fire, add ¼ pound of butter, 1 ounce of ginger, 1 teaspoonful of soda, and 2 pounds of flour; roll thin, cut, and bake about 20 minutes in a slow oven.—Courtesy *Practical Farmer*.

HONEY CARAWAY LOAF CAKE.

Cream ½ cupful of butter, add ½ cupful each of sugar and honey, 2 well-beaten eggs, 2 cupfuls of flour sifted with 1 level teaspoonful of baking-powder and 1 teaspoonful of caraway seeds. Pour into a buttered shallow loaf-pan and bake about 25 minutes.—Courtesy *Practical Farmer*.

HONEY ANGEL CAKE.

Sift 1½ cupfuls of flour four times, add 1 teaspoonful of cream of tartar, and sift again. Beat the whites of 11 eggs until stiff, add 1½ cupfuls of white honey, beat lightly, then add the flour. Do not stop beating until you put in the pan. Bake in a moderate oven.—Courtesy *Practical Farmer*.

SPICED HONEY CAKES.

Two coffee-cups of flour, two tablespoonfuls of butter; one teaspoonful of ginger; ½ teaspoonful of cinnamon; one cup of honey. Salt; stir all together, add last thing one cup of boiling water poured on one heaping teaspoonful of soda.

Chenango Forks, N. Y. MRS. E. W. LANTZ.

[The cake that we made with this recipe seemed, for some reason, to be rather heavy. We would suggest that 2¾ cups of flour be used or else less hot water, and that one egg be included, beaten separately.—ED.]

HONEY-GEMS.

Two quarts flour, three tablespoonfuls melted lard, three-quarters pint honey, one-half pint molasses, four heaping teaspoonfuls brown sugar, one and a half level tablspoonfuls soda, one level teaspoonful

salt, one-third pint water, one half teaspoonful extract vanilla.—From Bulletin 184, Ontario Department of Agriculture.

CORN BREAD.

Take 2 cups corn meal; one egg; one cup sour milk; ½ teaspoonful soda; one teaspoonful baking-powder; ½ spoonful salt; 2 tablespoonfuls honey. Mix with water for desired consistency.

Greensburg, La. E. C. DAVIS.

HONEY WITH FRESH FRUITS.

There is a wide field for the use of honey in connection with fresh fruits. Fruits which are naturally rather tart and lacking in rich flavor are greatly improved and become very palatable when eaten at table with honey—possibly excepting buckwheat honey.

Fresh currants make a fine relish eaten with various roast meats. Honey should be poured lightly over the fruit in individual dishes, then mash the fruit with a fork; a little water may be added if desired. Sour cherries, pitted, may be used in the same fashion; also cut-up peaches—this is especially good when the peaches are rather tart; well-ripened gooseberries ditto. Strawberries, red raspberries, and blackberries come into the list too.

Of course, where good thick cream is available it is to be preferred; but in cities and towns, or where real cream is scarcely known, honey makes an excellent substitute or variation.

New Jersey. B. KEEP.

HONEY VINEGAR

Honey vinegar can be made by using one and one-half ounces of honey to one gallon of clear soft water. Store in a barrel or other vessel. It should be kept in a warm place, with an opening in the vessel to allow the air to circulate freely, thus causing it to come to perfection more quickly. At the end of the year it will be ready for use. Its keeping qualities are excellent, and the best of pickles can be made with it. There is, perhaps, nothing superior for using with vegetable and meat salads. —From Bulletin 184, Ontario Department of Agriculture.

HONEY PUFFBALLS.

Cream 3 tablespoonfuls of butter with ½ cupful of sugar, add ½ cupful of honey, 1 cupful of milk, 2 well-beaten eggs, a pinch of salt, 2 teaspoonfuls baking-powder sifted several times with 5 cupfuls of flour; flavor with cinnamon, nutmeg, or lemon, and drop by teaspoonfuls into very hot lard or oil. Brown well. These have been very popular for years and are well worth trying.

For the benefit of young cooks I would say that in frying these cakes or doughnuts, it is important to have the lard sufficiently hot before beginning. A good way to try it is by dropping in a crumb of bread. If this browns while you count sixty it is right. If only a few cakes are put in at a time, adding others at intervals of a few minutes, the temperature will be kept more even than if the pan is filled at once.—Courtesy *Practical Farmer*.

For cough or irritated throat, take 2 tablespoonfuls each of honey and glycerine, 1 tablespoonful of lemon juice, with a dash of ginger. Keep the mixture warm and use a little as needed.

A teaspoonful of heated honey will often quickly stop a cough and seems especially effective at night. —*Practical Farmer*.

HONEY FOR ASTHMA.

My husband was a sufferer from asthma, and was getting worse every year. We secured some bees, and he has used lots of honey since then. The first winter passed with hardly a trace of the asthma. We did not connect the cure with the honey until the spring of 1913, which was a failure in the early part, and we got along without honey. The asthma commenced again until we went to using honey. Once since, in 1914, we bought some new molasses and he left off the honey for awhile, and then the asthma returned again.

If it was the honey that caused the cure it has been worth lots to us, as we were thinking seriously of going to another climate to see if it would benefit the asthma. To be sure, he will continue the remedy, as it is a very agreeable one; and if we should get out of honey the bees are liable to be "robbed."

Laurel Springs, N. C. MRS. J. T. REEVES.

COUGH SYRUP.

Boil one quart of ripe wild cherries in one quart of water for one hour; then strain, and boil to one pint. Add ½ pint of honey, and juice of 2 lemons; one teaspoonful of liquid tar; then let it come to a boil. Then bottle; ½ teaspoonful for a dose.

Hartville, O. MRS. J. A. KREIGHBAUM.

HONEY FOR BOILS.

Take a teaspoonful of honey and make a paste with wheat flour so it will adhere to a cloth. Put it on the boil like a poultice.

BEST COUGH REMEDY.

Get 1 oz. tincture of lobelia; ¼ oz. capsicum; 15 drops oil of wintergreen; ½ pint pure honey. Put all into a pint can or bottle, and shake thoroughly. Dose: one teaspoonful three times a day, shaking well before using.

Huntington, Ind. MRS. E. H. UPSON.

A COUGH REMEDY.

Take one ten-cent package each of the following in the crude state. Comfrey root, elecampane, boxwood, and hoarhound made into a decoction boiled. Add one quart of honey and boil into a syrup.

Bunceton, Mo. J. R. MARYE.

RECIPE FOR CHRONIC COUGH.

One pint each of lemon juice, olive oil, and extracted honey; ½ pint Jamaica rum (this may be left out); one fresh egg. Put the lemon juice into a fruit-jar or large-mouthed bottle; wash the egg, and drop it *unbroken* into the lemon juice. In about 24 hours the shell of the egg will be dissolved. Then remove the tough inside skin, being careful to leave every particle of the shell in the lemon juice. Beat all together; warm it enough to mix well, and bottle. Keep in a cool place. Dose, a teaspoonful frequently.

Phoenix, Ariz. JENNIE C. GIBSON.

COUGH MEDICINE.

Three tablespoonfuls each of honey, lemon juice, and sugar (granulated); one tablespoonful of glycerin. Take occasionally during the day by the teaspoonful. One just before retiring will ease the throat wonderfully. With us this has proven invaluable with many hard colds, accompanied by severe coughing, and also for hoarseness.

Salisbury, Vt. F. J. PERKINS.

COUGH MEDICINE.

Take 5 cents' worth each of boneset, sage, and horehound. Boil in 2 quarts of water. Strain through a cloth, and add one cup of honey, one cup of syrup (either maple or cane). Boil all together until it forms a thin syrup. Then add the juice of two lemons and one tablespoonful of castor oil. Take a spoonful as often as you feel like coughing.

Butler, Ind. MRS. D. H. KNISELY.

REMEDY FOR SORE THROAT.

Sweeten strong sage tea with lots of honey, and in it drop a little carbolic acid. Use often as a wash or gargle. No harm if children swallow a little. In bad cases, first clean mouth and throat with a wash made from baking-soda. All washes should be warm. C. L. W.

Heads of Grain from Different Fields



The Backlot Buzzer

A city man wrote in the other day, and wanted to know what to do about his bees; they were working on the goldenrod, and he was afraid they'd get the hay fever.

Swarming with Queen-cells; Was it the Season or Something Else?

I have been thinking for several days past of writing you or Dr. Miller in regard to the abnormal condition of bees in this locality (and I guess it's quite general from what I am able to learn from other localities). Yesterday, while talking with a neighbor in regard to the condition (and he did not seem to realize how much out of line they were), he urged me to write you, asking if you had ever had any experience like it, and what of the result and what to do.

We are all having swarming, some the last few weeks, and I haven't found any of them who have looked into the cause of it; but most of them have put the bees in new hives. I had a very strong colony swarm ten days ago. As the queen was clipped they were settling as I came to the yard. On looking through them very carefully I found no signs of a queen cell—not even an embryo cell; but what I did find was stacks of young bees and ten frames of brood, some sealed from top to bottom, end to end, and plenty of eggs and larvæ of all ages, but not one sealed cell of honey in the brood-chamber, nor any honey, so far as I could see. They may have had a little honey in the supers (there were two on the hive as they needed them for room), but I could not detect any there. I gave them two frames of sealed honey on which the bees died last winter. The next day I looked through ten other colonies, finding practically the same condition. I gave five of them two frames each of sealed stores. Of course this is not advisable generally, on account of danger of starting robbing. I contracted the entrances for 48 hours, and there was no robbing; but there was some excitement in the yard.

Have you any records of such abnormal conditions at this time of year with very little honey coming in?

What is the remedy, and what is likely to be the results?

Urbana, O., Aug. 30. O. J. JONES.

This was referred to Dr. C. C. Miller, who replies:

The bees seem to be always trying some new stunt to emphasize the fact that we don't know very much about them. I'm not sure that I ever experienced exactly the same thing you have had, but at least some of the things you have had. You describe the hives as unusually full of brood, and not a cell of sealed honey in the brood-chamber. This year my hives were crammed with brood and no sealed honey in the brood-chamber, only in my case there was honey in the supers, and this was kept up through the clover flow. I never saw just the same thing before, and don't know for certain how to account for there being no honey sealed in the brood-combs. Indeed, there was very little honey unsealed in the brood-chamber—no room for it. I *guess* that the unusual wet and cold had something to do with it. The colonies were very strong, and brood-rearing went right on in days when bees could not get out, leaving only enough cells for the unsealed honey, for you know that, no matter how much sealed honey may be present, some is always kept unsealed for immediate use.

It used to be counted the right thing for bees to send out a swarm as soon as the first queen-cell is sealed, and when left to themselves they generally follow that rule. But unusual conditions or the meddling of the beekeeper may cause them to disregard it. Persistent cutting-out of queen-cells may result in swarming with only eggs in queen-cells, if, indeed, there be that much preparation. The excitement of other bees swarming will sometimes make a colony swarm before its normal time. Why might not the excitement of a sudden flow of honey do the same thing? This year my bees had probably the same experience as yours. After having done a good bit at storing on clover, they did almost nothing all through August. Then in the first part of September came a flow when the bees worked with an excitement I never saw excelled, and seldom equaled. I don't know whether any of mine swarmed, but I know there were swarms in the neighborhood, and it is just possible that bees swarmed here with as little preparation as yours.

Marengo, Ill. C. C. MILLER.

Does a Laying Queen ever Desert Her Hive and Go into Another?

Does a laying queen ever leave her hive, go to another hive, and be accepted? An incident happened in my apiary which I cannot account for otherwise. I removed the queen from a fairly strong colony which had been fed to get in shape for building cells. By its side was a three-frame nucleus with a young laying queen. No nectar had been coming in, and the nucleus was very short of honey. In eight days, when looking in the supposed queenless colony for cells, I was surprised to find a laying queen with brood in all stages, and

still more surprised when looking in the nucleus to find no queen or eggs, but capped queen-cells.

I am as sure as one can be that the strong colony was not superseding, and the queen they have is marked like the one formerly in the nucleus. Did the queen get discouraged with such small proceedings in the nucleus? or did some of the workers in the strong colony come over and offer her a better job?

If one confines the queen to an upper story, placing a comb super between it and the lower story in order to have cells built below, then when cells are removed can the super and excluder be removed without danger of the old queen being killed?

Odon, Ind. W. H. BAIR.

[Cases of this kind have been reported, but they are rare. It is not uncommon to find the *bees* gradually deserting a queenless hive, and going into another near by where there is a queen; but it is very seldom indeed where we find a *laying queen* swapping homes. The incident here reported may be accounted for in two ways: First, the nucleus may have swarmed out, as nuclei often do when short of stores; returned, and, instead of going back to the old hive, went into a stronger colony. Second, the bees in the nucleus may have attempted to ball the queen. Sometimes a queen under those conditions will run if she can elude her captors, and escape at the entrance, fly about for a time, and then return to her old hive near by.

A *virgin* queen will very often by mistake go into the wrong hive.

As to your last paragraph, we see no reason why you could not remove the excluder without danger to the queen. The colony odor in the lower and upper part of the hive would be the same; and unless there were virgins above, the old queen would be accepted below.—ED.]

Some Questions on Moving Bees

1. In preparing full colonies for a 300-mile shipment should there be a notched stick placed on the bottom-board to keep the bottom-bars from swinging sidewise?

2. Would anything be gained if the queen were caged ten days previous to shipment, and then liberated after shipment?

3. How much honey should be left in an eight-frame hive?

4. How much air space should be given above the frames?

5. Would an empty comb-honey super be all right?

6. Should I take water in the car and sprinkle the bees whenever they get uneasy?

Clarkston, Mich. W. L. LOVEJOY.

[1. If you have loose-hanging frames such an arrangement is not only desirable but necessary. With self-spaced frames, either closed end or of the Hoffman type, it would not be needed.

2. We hardly think this would pay you, for under ordinary circumstances your sealed brood would not suffer on the journey, and in some cases the unsealed brood is all right also. Caging the queen would simply put the colony back, and you would have your labor of finding queens, caging them, releasing them, etc., besides.

3. It depends on the size of the colony and on the age of the combs. There is not as much danger, of course, of comb breakage if the combs are old and tough, and in that event the danger in having them too heavy with honey would not be as great. However, the rule is to send no more honey than the bees will require on the journey, in order to reduce weight and to reduce to the smallest possible amount the danger of breakage.

4. We advise tacking on a framework the size of the hive made of one-inch material, which is covered with a heavy screen. This should go above and below. The two screens provide two inches additional space, and under ordinary circumstances this is enough.

5. There would be no great objections to the empty super except that it would take more room in the car, and we do not know that it would be any better than the one-inch space afforded by the screens mentioned above.

6. Yes, in hot weather you will need a good deal of water.—ED.]

More about Pollen in Sections

In editorial comment, page 82, Jan. 15, I note what is said about Mr. Sprout's trouble with pollen in sections. He has used queen-excluders, but they are not pollen-excluders. The editor refers to a comb or combs at the side of the brood-chamber as a means of holding it down. It occurs in colonies that do not swarm as well as in those that do, as these colonies are normal and have certainly all the combs in the brood-chamber. The pollen still goes up. He also speaks of empty cells. Tell us how to keep them empty. I suppose he advises going over the yard every other day and giving empty combs. This would be fun.

He also speaks of bees being creatures of habit, and says they must not be allowed to get the habit of placing pollen in sections. Do you suppose that the bees that place pollen in the sections this year will be there to place some there next year? Your contention might be all right for just one season, but this is an every-year occurrence.

Akron, N. Y., Feb. 15. WM. F. VOLLMER.

[We give it up. Who has had practical experience in preventing this very annoying trouble?—ED.]

The Cover Question

I have seen and used many kinds of covers for hives, but have always found that many, if not all, had their weak points. Some absorb water, and leak; others need painting too often, which is an expense as well as a labor; others rot out too quick, and still others get so hot on a real hot day that the frames of honey will melt down.

The new cover which I am using now has none of the above weak points. It never needs painting; will wear as long as the hives themselves; will not leak, and is the coolest cover I have ever found What is it? It is aluminum. Some will say that it is too expensive; but if you will get it as thin as taggers' tin you will find that it is not expensive.

Simply order the aluminum in sheets a little larger than your old cover, and turn down the edges and nail them down, overlapping at each side and end to shed the water. Put this aluminum cover on a hive out in the sun with some other kind of hive-cover in reach; and after letting the same stand in the sun for an hour, place one hand on the aluminum cover and the other on your old cover, and you will find that, while the aluminum cover is hardly warm, the other cover will almost burn your hand. We all know that aluminum will not rust. Remember, do not paint this cover, and get it as thin as taggers' tin. Try this, friends, and be convinced and do away with paint and rotten covers.

Morgan, Ky. J. E. JORDAN.

Aster Stores for Wintering

My bees are wintered on a combination consisting mostly of aster honey and sugar syrup. I find them to be good winter food. I do not have goldenrod. This year I will remove the supers before the aster flow in order to compel the bees to store their honey in the brood-chamber.

Lititz, Pa. ELMER S. SNAVELY.

A. I. Root

OUR HOMES

Editor

The harvest is plenteous, but the laborers are few. —MATT. 9:37.

Behold the Lamb of God that taketh away the sin of the world.—JOHN 1:29.

He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.—JAMES 5:20.

"THE REMAKING AND MENDING OF MEN."

At our Medina Chautauqua this summer, Chaplain Kiplinger, of the Indiana State Prison, gave about the best talk in favor of prohibition that I ever heard. He had a large and appreciative audience, for which I thanked God; but it seems to me that the facts and figures he gave should be held up before the people, not only for the state of Ohio but throughout the United States and the whole wide world.

Perhaps I was specially prepared or fitted to take in the significance of that talk. I have told you in past years several times about my work for several years here in our Medina jail, especially when we had open saloons running in full blast in our town. Let me go over it briefly just to bring to mind one particular instance.

Shortly after my conversion I found my way into our county jail. There were, perhaps, half a dozen bad and even wicked men and boys there, shut up with nothing to do but to chew tobacco, play cards, and indulge in the worst profanity and obscenity I ever heard. When I tried in my feeble way to hold up before them the gospel of Christ Jesus they turned on me until I was apparently "snowed under." But I kept coming and pleading with them, not only on Sunday afternoon but between times. When they became tired of their confinement they gradually began to be glad to see me, because it was a sort of diversion to them. I got them to read good books, and taught them to sing some gospel hymns; and as they dropped out one after another they certainly had made some progress out of their evil ways. I met them occasionally years afterward, and almost always with a good report from the seed that was sown in their hearts years before.

After they had all left, the ring leader (who had already served a term in the penitentiary, and was on his way the second time for robbery), I had a chance to get well acquainted with him. In fact, he became so lonesome after many weeks of confinement that he was glad to listen to and talk with anybody.* You will recall, perhaps, his coming *out* of our Medina jail, as the scripture puts it, "clothed and in his right mind." In less than one year he was teaching a class in Sunday-school; and when he got a position as conductor on a freight train he had his caboose papered inside with scripture texts instead of vile pictures and writing, that used to be the custom in years gone by.

The reason I mention this just now is to hold up before you the fact that almost any criminal may be made a good man, or certainly a better man, if some good Christian could sit down by his side, get well acquainted with him, win his confidence, and lend a helping hand in every way in his power. When a man first gets into prison he is often defiant and ugly; but after days and weeks of confinement he sobers down and is ready to talk. What is wanted is good Christian men and women who are willing to give their ability and time to such work. Surely, as we have it in our text, "The harvest is plenteous, but the laborers are few."

Some years ago it was my privilege to listen to that grand good woman, one of God's choice jewels, Mrs. Maude Ballington Booth. The whole wide world knows what she has done for men and boys in the prisons of our land. Well, Chaplain Kiplinger spoke for over an hour. He gave incident after incident showing how he finally reclaimed men who seemed for quite a time hopeless; but, may God be praised, he almost invariably won out in the end. There were such crowds gathered about

* After Fred and I became "good friends" I found he was left at an early age without either father or mother, and was "farmed out" from one farmer to another, and I fear these farmers were more alert in making the boy pay expenses than they were in making a good boy and a good man. As a consequence he became soured toward everybody. He told me that "The world has been 'agin me,' and I am 'agin' the world." That was when I first saw him; and when he declared "They may carry my dead body back to that 'old pen,' but they will never carry me alive," he was in a desperate frame of mind. When I succeeded in making him comprehend the meaning of the text, "Love ye your enemies, do good to them that hate you," he said, "Mr. Root, that may be all right. I do not dispute it, mind you; but it goes awfully 'agin the grain.'" After days and weeks of pleading he finally one day sent word that he wanted to see me. He outlined what a change it would be for him to undertake to be a disciple of the lowly Nazarene, and finally said, "Well, Mr. Root, I do not make any promise, mind you. I do not know how I shall make out *trying* to be a Christian; but I will make a trial of it. I will do the best I can." Then at my suggestion he knelt down on the stone floor of that old jail and in his own way with broken language he said, "God, be merciful to me, a sinner." What a change came over his face from that time onward! The hard, defiant look was gone. A happy smile lit up his manly face in a manner I had never seen before: and every time we met after that he told me of new victories he had met with the help of the little prayer I taught him—"Lord, help."

him as he ended his talk that I was unable to see him; but after I reached home I wrote him as follows:

My good friend, it was my great pleasure, yesterday, to listen to your talk here in Medina at our Chautauqua meeting. I am enclosing a few leaves of our journal for August 1, to let you know what we are trying to do in the temperance crusade to make Ohio dry.

Now the facts you gave us in regard to intemperance and the state prison are, it seems to me, more important than anything either our journal or the *American Issue* or any other temperance periodicals have gotten hold of. Possibly what you stated has been already in print. If so, will you kindly get it for me, or tell me where I can get it? If it has not been in print I will gladly pay you for your time and trouble in giving me the part of the talk, especially of statistics and figures in regard to intemperance. As I am anxious to know as soon as possible if I can get it for use in our journal, I inclose an addressed postal.

May God bless and strengthen you for what you have already done, and that you may continue the work far into the future. Perhaps I might add that, when I was a young man, for many years I visited our jails here in Medina. That was when we had open saloons in our town, and I had quite a class every Sunday; and it was my great privilege to see quite a number converted to the Lord Jesus Christ, and now filling places of trust and responsibility. You know what this means to a Christian worker.

Once more, may God bless and sustain you.

Your old friend,

A. I. ROOT.

About Sept. 1 I received the following, evidently taken down by some stenographer from one of his lectures:

FROM "THE REMAKING AND MENDING OF MEN."

By C. L. Kiplinger, Chaplain Indiana State Prison.

Speaking of the parole law and its proven results the speaker said:

The information and advice upon which a parole is granted is gathered for the Parole Board almost from the day the prisoner reaches the institution. The board, considering the release of a prisoner, has before it the full case record of the prisoner's offense; the prisoner's statement; the statement of the trial judge and prosecutor; letters of reference as to the past history, habits, and reputation of the applicant for parole; and, in many cases, the report of a personal investigation made by the state agent.

If a parole is granted, the prisoner must have first of all, a suitable place of employment. This is found or investigated by the state agent. The employer must know that the man he takes comes from prison, be willing to take him notwithstanding, and to take a friendly interest in him. The prisoner must not use intoxicating liquor; he must not frequent questionable places nor associate with questionable characters; he must make each month a written statement of earnings, expenditures, and savings and general conduct, which report must be signed by his employer, vouching for it as correct. The willful violation of one or all of these conditions constitutes a violation of parole for which the man will be returned to prison.

In seventeen years over 8000 men have been paroled from Indiana institutions. Of this great number 75 per cent have kept the conditions of parole, and earned final discharge. In the old days —under the straight-sentence regime, with men automatically discharged after having served a stated amount of time, 70 per cent of all men so released got back into prison within one year for committing some new crime.

The state should itself, by all means, supervise its paroled prisoners. Its agents should know where every paroled man is located, and visit him frequently to advise, encourage, or admonish as the case may need. The paroled man should be as much in the custody of the state as when behind the walls of the prison. Only such an administration of the parole law can make it fully effective, and prevent the law itself from falling into disrepute.

Speaking of liquor and crime, the lecturer said in part:

1. I know that 83.7 per cent of our present prison population are moderate or excessive users of liquor, and trace their crime entirely or indirectly to liquor.

2. To give figures: When our population was 1130 men, 946 of them were either drinking or drunken when their crimes were committed; or their crimes were planned in saloons; or, led away from former standards by drink, they became careless of morals and of law, and were ready to plan or be led into deeds which the law forbids, and for which human society demands a penalty.

3. I know that 96 per cent of the men serving life sentences in the Indiana state prison for murder, rape of child, and under the national criminal act, trace their crimes directly to liquor as the prime or contributing cause.

4. A careful examination into the past history of each of 226 men serving life sentences revealed the fact that 212 of the 226 crimes were traceable to liquor. Except for liquor, 212 of 226 murderers now serving life sentences in prison might now be living at liberty, and free of the foul stain of murder.

5. I know that county option in Indiana did reduce the number of commitments to the prison, and that the facts revealed by a study of the commitments received in a year when 70 of the counties were dry and 22 were wet, are significant as to the effect it would have on crime in our state to abolish the saloon.

Of the 70 dry counties in the state, 27, or 38.5 per cent, sent no man to prison.

Of the 22 wet counties of the state, 3, or 14 per cent, sent no man to prison.

The 70 dry counties of the state during the year committed 92 men to prison.

The 22 wet counties of the state during that year committed 135 men to prison.

The population of the 70 dry counties was 1,597,263. The population of the 22 wet counties of the state was 928,995.

Yet the 22 wet counties containing only 29.6 per cent of the state's population, furnished 55.3 per cent of the commitments to prison.

The 22 wet counties furnished one prisoner for every 7432 of the population.

The 70 dry counties furnished only one person out of every 16,023 of the population.

In one period of six months we received at the prison 92 men. Of these 92 men, 86 came from wet counties and 6 from dry counties. One of the six was insane.

SOUTH CAROLINA DRY, MORE THAN TWO TO ONE.

For days and weeks I have been watching the outcome of the election (Sept. 14) in South Carolina. I told Mrs. Root it would have considerable effect on Ohio, and, in fact, more or less effect on every state that is waging a like war for righteousness. I prayed for South Carolina for days and weeks beforehand. I prayed the

day before election, and on election day; and I kept nervously watching for some intimation of the outcome. Not a word appeared next day in any of our daily papers; not a word the second or third day. I began to tell Mrs. Root that no news was good news, especially when it must come through the dailies that are on the wet side. Finally on Friday morning, Sept. 17, while I was at the Methodist parsonage a good lady informed me she saw something in the papers to the effect that South Carolina had gone dry, without any particulars.

I try to be charitable, dear friends, but I could not help thinking that the great dailies of our neighboring city of Cleveland would show a little more alacrity in giving us temperance news if it were not for the fact that every one of them carries beer and liquor advertisements, that would make it look strange if they uttered a word in the way of rejoicing over a temperance victory, especially at the opening of this mighty campaign here in Ohio. Finally my heart was made glad to find the following on the front page of the *American Issue*, in big letters:

SOUTH CAROLINA VOTES DRY

THE NINETEENTH STATE KNOCKS OUT SALOONS BY A VOTE OF MORE THAN TWO TO ONE.

Tuesday of this week South Carolina voted on state-wide prohibition, and the drys won by more than two to one. The nineteenth state to vote out John Barleycorn will become dry the first of next January. Fifteen of the forty-four counties were wet under the county dispensary system. Early returns indicate that all but one county, possibly two, gave dry majorities. The county containing the capital city of Columbia went dry with a whirl.

South Carolina points the way for Ohio. Let the Buckeye commonwealth become the twentieth state to outlaw the saloon.

Surely God's kingdom *is* coming.

Later.—The following has just come to hand, dated Columbia, S. C., Sept. 15. I copy it from the *Manatee River Journal:*

South Carolina yesterday adopted state-wide prohibition, to take effect January 1, 1916, according to almost complete unofficial returns gathered here. The vote, with nearly full returns from most of the counties, late last night stood

For prohibition, 33,104.

Against prohibition, 14,157.

The total vote, while well over that cast in most general elections in South Carolina, is far below the customary poll in Democratic primaries. From present indications it seems likely that the total will be in the neighborhood of 60,000.

Governor Manning, who was elected on a local-option platform, after learning the results of the vote, gave out a statement saying that, the people having spoken, he would do his utmost for the enforcement of the law, and would expect the support of all the citizens in his policy.

Of the thirty counties already dry under the local-option law, all gave varying majorities in favor of statewide prohibition, the margin being large in most cases. Only one of the counties now having dispensaries is certainly on the local-option side.

FLORIDA'S NEW TEMPERANCE LAW TO GO INTO EFFECT OCT. 1; SEE P. 474, JUNE 1.

About the time this number reaches you, Florida will be fully ready for law enforcement. If you are not already aware of it, the Davis law is ready to go into effect. See the following, just sent us by the Anti-saloon League of Florida:

FEDERAL JUDGE DECLARES FOR SMASHING THE SALOON.

My notion is that the saloon will have to go. I believe the time will come when the people will rise up and smash the saloon—at least as we have it today. The evidence in this case showed that the saloons were the center of nearly all the corruption in the election at Terre Haute.—FEDERAL JUDGE ANDERSON.

The Davis law will smash the saloon as it is.

Then the Davis law should be enforced, for it allows:

1. No drinks sold or given away—sales to be only in sealed packages.

2. No drinking—no package can be opened in the room where sold.

3. No screens, pictures, music, cards, tables, chairs, or gambling.

4. No loitering—"buy your package and go."

5. No selling to women, boys, drunken men, *nor* on credit.

6. No free lunch—no eatables at all; the "decoy" gone.

7. No social dram, no treating; profit gone; good by, saloon.

8. No back doors, no dark holes in wall, no back rooms.

9. No selling between 6 P. M. and 7 A. M. Think of it!—the saloon to be closed during the hours when nearly all profits are made.

Verily this law smashes the saloon "as we have it today."

Our next legislature will kill it altogether.

Therefore the Davis law should be enforced.

One hundred and forty-seven liquor-dealers in Jacksonville shall obey the law or else they will plunge Florida into a state of anarchy, holding Florida by the throat, saying, "You can't enforce your laws."

Even the lawyers of the liquor-dealers themselves say that the Davis law is constitutional, and can be enforced. But it is the old story, "The Whisky Rebellion."

Let us submit no longer to the rule of rum.

Unfurl the flag and enforce the laws. Let the people rule.

Rally to the help of the Anti-saloon League; and please, as you value our sacred cause, send a check or cash offering to help us pay the expenses of organizing and working committees in every wet city to enforce the Davis law.

We must work fast to get ready for October 1.

C. W. KINNE.

302 St. James Building, Jacksonville, Fla.

BARRING INTOXICANTS FROM THE INDIANS; WHY NOT DO IT FOR THE AFRICANS?

We clip the following from the *Sunday School Times:*

AFRICA'S HORRIBLE BAR-ROOM.

The following item from the *Boston American* illustrates a kind of news which appears every few weeks, and the handicap which we place in the way of Christian civilization while we send missionaries at great sacrifices to advance it. The item ran as follows: "The Estelle Krieger is taking out nearly 300,000 gallons of rum. The demand for rum in

the Dark Continent during the past few months has been unprecedented. The Charles Whittemore sailed June 12, and the schooner Orleans April 22. The three vessels will land nearly 700,000 gallons of the fluid at ports along the west coast of Africa." This is the trade that the Rev. Charles Satchell Morris has said "has turned the entire west coast of Africa into one long bar-room."

Years ago the United States saw fit to pass a law keeping intoxicants entirely away from the Indians. Why it is that a similar law has not been enacted in regard to the colored people, and especially the inhabitants of Africa, is a puzzle. Right in connection with this, from the *Sunday School Times* we make a clipping that also touches on alcohol as a *medicine*. Read it and ponder over it.

DRINK AND SLAVE TRADE IN AFRICA.

Dr. Fisch, for twenty-five years a medical missionary in the Gold Coast of East Africa, writing for one of the European journals, points out that the slave trade as formerly carried on cost the lives of hundreds of thousands, broke up families, and deprived them of liberty; but the injury that the drink traffic has done to the negroes is worse. This Gold Coast country has a favorable climate, and is wonderfully rich in vegetable and mineral products of many sorts; but as drinking has increased, the living conditions and vigor of the people have constantly declined. Negroes who are not drinkers easily recover from pneumonia; but the drinkers die of heart failure in spite of all that can be done. Tuberculosis, once a rare disease, now runs a rapidly fatal course. Degeneracy in the offspring of drinkers is shown not only by their lowered resistance to tuberculosis but by frequent loss by mothers of power to nourish their children, by carious teeth, by a special form of infantile paralysis, and by a considerable increase in idiocy and epilepsy, all of which were formerly rare or entirely unknown. The character of the people also is changing for the worse. Crime and immorality and disease are increasing, and the possibilities of spiritual uplift are being endangered. On the other hand, although the living conditions are much harder in the adjacent territory of the Togo, but where the liquor traffic is prohibited, the people are vigorous, muscular, amiable, and apparently free from degeneracy. "The alcohol trade poisons the race to its roots and menaces its future."

UTAH ON THE WATER WAGON.

My father drank to all that drink calls for; but I had a Christian mother who stayed with us boys until the last, and not one of us drink or use it in any form. I am the oldest, 41, and am blessed with a good wife and five nice boys and one girl. We all enjoy good health, and are ready with our good clear minds and strength to fight the liquor and tobacco habits in any form to the last ditch. Since looking back on my boyhood days I often think of the liquor traffic as it was years ago, along the Ohio River and its small streams. Then there were but very few persons who would dare raise a voice against its use. But to-day I am blessed to see the time when very few will dare raise a voice for it. My mother's last prayer and talk to me about it was, "My son, I may never see the day, but I pray that you will, when a man will be ashamed to uphold its cause;" and, thank the good Lord, it *is* coming to pass.

We all call you here in our humble home "Daddy Root;" but I do not really think you can comprehend the temperance cause and its effect as well as a man who has seen some of the liquor men's worst evils. I am hoping and praying that you and all good men and women will live to see the liquor and tobacco evil put out of the way to *stay*, and then may we be able to do better for those who are dearest to us.

Now, Mr. Root, I must tell you that, in the last twelve years, I have not heard twelve good old-fashioned sermons here in this part of the world. I almost envy you and a great many people who enjoy such blessings. When we get GLEANINGS we first turn to the Home department and read your writings first, and then read it from cover to cover. Nothing is left out.

Remember the mothers in this state can vote on these and every other cause that comes to a vote. Now, if we all will put our shoulder to the wheel and give one good lift, even if we do not lift the load, let us keep on until we do lift it. That is my motto, and I fully believe it is the motto of millions of good people; and so with all of our prayers and votes directed right we can do something for the cause of goodness.

Taft, Utah, Aug. 5. W. J. JUSTICE.

SHALL THE LIQUOR BUSINESS PREVAIL AGAINST THE UNITED EFFORTS OF OUR SCHOOLS AND CHURCHES?

We clip the following from the Chicago *Advance:*

The saloon forces can never stand against a united attack of the army of Jesus Christ. When we cease to call on God we shall cease to advance. When the United States becomes a saloonless nation we shall have become the best-prepared nation on the face of the earth for war or peace. The multiplication of war munitions and equipment, and the increase of army and navy, will be likely to foment trouble and induce war.

Real preparedness is mental and moral rather than material. A saloonless nation is an invincible nation.

WHISKY AND WAR.

Farming Business hits both of these twin evils a tremendous clip at one blow as follows:

BOOZE IS NOT MEDICINE.

Booze is on its last legs, and they are shaky. The druggists have cleared their skirts of its dirty touch by refusing to include it in the list of drugs and medicines. Reliable druggists have not cared to handle whisky for some time, but thought they were compelled to as long as it was listed in the American drug list. In revising it the last time, however, the committee decided that the ancient fake of calling whisky "medicine" was no longer worth their support. Hence, they put the ban on whisky. The leading medical and scientific men of the world for some time had classed it as poison, and only a stimulant at its best. It was merely a stiff-necked form of hypocrisy to carry it in the drugstores as medicine at all more. Now the booze supporters are without their main argument that whisky is something that doctors need in their work of saving human life.

As a stimulant and a poison, booze is still a winner. Jane Addams, after her return from Europe recently, where she visited all the monarchs of the warring nations, declared that officer after officer had told her that before a bayonet charge men were given big drinks of alcohol in the form of the various national concoctions in order to "fire them for the killing." Even in war, where men are expected to kill each other if they happen to be wearing different uniforms, they have to be poisoned to kill each other at close range. A bayonet charge

with the storming of trenches where men lock themselves together and clench their teeth and jab with the bayonets until they drop or there are no more moving bodies to jab, requires stimulants. Men must be robbed of their reason for a time to get them to butcher human beings at the ends of their gun-barrels. Such is the rating of booze.

431 MILES OF BREAD.

The value represented in the above heading is what the saloons must take in for beer in one county in Ohio in order to get back the money that they pay the state for the privilege of carrying on the saloons for one year. The Akron *Press* for Sept. 4 prints a copy of a banner that Miss Minnie Ellet is painting by hand to put up at county fairs and wherever they will do the most good. Below is their statement in regard to the matter.

TEMPERANCE WORKER PAINTS BANNS TO TAKE WHACK AT JOHN BARLEYCORN.

Old John Barleycorn had better take to the woods.

Miss Minnie Ellet, of Springfield, is on his trail again.

Miss Ellet, who has taken many a solid whack at John, is out with a pictorial argument which she thinks is a staggering blow.

The reading below is painted on a huge banner with her own hands. And she is getting ready to display it where she believes it will do the most good.

Miss Ellet has lettered 19 banners, and they are to be presented to as many divisions of the W. C. T. U. in Summit Co.

"Where am I going to put the banners?" echoed Miss Ellett Thursday. "Why, I'm going to put them over the brewers' signs—hang them right over the signs of John Barleycorn."

And below is a copy of the "banner."

SUMMIT COUNTY'S LICENSE BILL.

206 equals number of saloons in county.
$5 equals application fee of each saloon.
$100 equals registration fee of each saloon.
$1000 equals license fee of each saloon.
$1105 equals total fees of each saloon.
$227,630 equals total fees of 206 saloons.
4,552,600 equals schooners of beer the 206 saloons must sell to pay just license fees.
Who pays this bill?
One schooner of beer equals one loaf of bread.
4,552,600 schooners equals 431 miles of bread.
To pay just license in Ohio's 43 old wet counties, 11,209 miles of bread must be sacrificed.
Bread or beer?
For which will you vote?

The reason why Summit Co. has such a large number of saloons is because Akron, with a population of 115,000, largely foreigners, is its county-seat. But even *that* county, with its 206 saloons, *voted dry* a year ago.

OUR RECENT OHIO STATE FAIR.

It is refreshing to note that the *Ohio Farmer* feels very much as I do about the improvements recently inaugurated in regard to the Ohio State Fair. See the following, clipped from the *Farmer:*

Expositions are the registers of progress. The State Fair of this year presented strong contrasts with that of ten years ago. Automobiles, tractors, road-building machinery, silos and silo-filling machinery, and limestone-crushers and milking-machines are now very prominent. Then the activities of the state itself, the experiment station, the agricultural college, the industrial commission, the State Board of Health, the fish and game, and the dairy and food departments, the livestock and orchard inspection bureaus, made up a very large part of the exposition. This, together with *the absence of side shows*, gave the fair far more of the educational aspect. The only thing that seemed entirely out of harmony with the education idea was the fireworks. It is hard to understand why "attractions" should be employed at the fair any more than at the agricultural college to draw patronage. It is hard, too, to connect the race track with agricultural promotion or better citizenship. But it may be too idealistic to think of running a fair without a horse race. I hope to live long enough, however, to see it done.

The italics in the above I put in myself. Amen to the closing sentence!

The Ohio State Fair did not take in as much money as in former years; but what they lacked in money at the gate was made up in "treasure laid up in heaven" in the shape of thousands of boys and girls who were not demoralized by low-lived side-shows.

It seems but a few years ago when I saw on the grounds of the Ohio State Fair a long row of beer-kegs with great blocks of ice resting on them. Ice-cold beer was being dispensed alike to old and young, clear through from the beginning to the end of the fair. May the Lord be praised that not only are the kegs of beer a thing of the past, but that the fake beer literature of the "Ohio Temperance Union(?)" has also been put down and out.

NATIONAL APPLE DAY, TUESDAY, OCT. 19, AND THE WAR.

For years past I have been hoping and praying that something might occur to sidetrack and divert the attention of those engaged in the wicked war in Europe, and that the belligerents would come to their senses and realize the folly of their undertaking; and as, with God's guidance, a pebble from the brook, in the hands of David, slew the giant Goliah, is it not possible that just an *apple* (or a great *shipload* of apples) may, through God's guidance, do like service in regard to the war "giant" across the great waters.

Mr. R. J. Coyne, chairman of the Publicity Committee of the United States, sends us the following:

APPLES FOR SOLDIERS IN EUROPE.

"Last year they let several cargoes of toys and other similar articles go through to different countries, and I think these apples ought to be consider-

ed in the same light as other gifts which America has donated to the war-ridden countries."

A local apple-man who has interested himself in the matter, and who has figured out how it can be done, says: "It is a big proposition, and will require skillful handling; but it can be done. The value of the fruit alone would approximate about $300,000 aboard ship at New York, for apples are worth considerably more than a year ago. Of course the expense of outfitting a vessel is a matter that has not been fully decided upon, but the fruit people have always been charitably disposed in cases like this, and they will help to find the means if assurances are given that the apples will reach proper hands. We understand that there are about 25,000,000 men actively engaged in the various armies and navies in the European war, and probably as many more indirectly involved. To give them all an American apple apiece would mean at least 50,000,000; and taking 500 apples to the barrel, which would be medium-sized fruit, we shall have to provide 100,000 barrels or 300,000 boxes, at the lowest estimate. At present the minimum market value of this fruit is $3.00 a barrel. I figure the whole undertaking would cost not less than $500,000; but when we stop to figure that every person in this country, no matter what his nationality may be, could easily lend a hand in the undertaking it is not such a difficult proposition as one might suppose."

Apple-men hope to have the European belligerents agree upon a one-day armistice when the apples are distributed, and it is planned to get everything in readiness for the vessel to sail on National Apple Day, Oct. 19, so that the consignment may reach the various fighting zones and hospitals the early part of November when Europe's scant fruit supply will have been exhausted for this season.

Every soldier in the trenches and hospitals in Europe will be given an apple in the near future, if plans now being worked out by a committee of the apple trade throughout the United States are successful.

It is proposed to have a vessel take over a big cargo of apples to be distributed free under the auspices of the Red Cross, and efforts will be made to get President Wilson and Secretary of State Lansing to have the several warring governments permit safe passage for portions of the big consignment to the various fronts and hospitals where the fruit can be placed in the hands of the Red Cross for distribution, especially among the sick and wounded.

Apple growers and dealers who are endeavoring to send over the big consignment have learned that many of the fighting men are suffering because of lack of fruit juices, giving rise to scurvy and other disorders. Returning surgeons who have seen service in the European hospitals are said to approve heartily the plan to provide more fruit juices, not only among the wounded but also for the men in the trenches.

"We are working on this undertaking purely from humanitarian motives," said one of the committee who is a leading wholesale apple distributer, today. "It's going to cost a lot of money for the fruit alone, and we shall call upon all the people engaged in the apple industry to contribute a portion of the expense. At first the trade did not take kindly to the plan, as it was feared that vessels could not be found to carry over the apples. Then the idea was conceived of chartering a ship which would take nothing but apples; and we believe that when the purpose is disclosed to foreign governments none will oppose free passage of our ship, for it will go on a mission of charity.

R. J. COYNE (of Coyne Bro's, Chicago),
Chairman Publicity Committee.

Please notice the italics in the letter above. If the belligerents could agree on this one-day armistice, might it not open a way toward ending the war at once and for ever? Jane Addams, who is now at the seat of war, says the only difference between the men who are fighting is the difference in their uniforms.

Our good friend Coyne sends with the above letter a list of about 75 fruit-dealers and commission men, located in as many of the principal cities of the United States, and, as I understand it, these great commission firms, and every one else, are going to work to load a ship with apples, this ship to sail Oct. 19.

CRIME A DISEASE, ETC.

From away off in Honolulu comes a periodical called *The Friend;* and this little magazine is indeed a friend of humanity. See clipping below from *The Friend:*

CURING CRIME.

Mr. Osborne's splendid management of Sing Sing prison is concentrating the best thought of the country upon the newer methods of restoring criminals to health as productive members of society. In three and a half years Warden Homer at Great Meadows, in New York, has been conducting his prison farm with such success that of 1400 paroled men only 40 have been returned to confinement. This system of treatment has been tried elsewhere with like results. Hence it is not strange that New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Minnesota, and Virginia are already embarking upon similar experiments with prison farms, and not a few other states are finding that outdoor work for prisoners under right conditions gives the most gratifying results. Hawaii has been practicing the same method for years and with great acceptance. Though we have no prison farm our wardens have been most successful in utilizing outdoor work as a means of training men back to normal habits. In this connection Mr. Ford of automobile fame has rendered the country lasting service by his graphic declaration of his willingness, after careful experimentation, to attempt in his factory the reformation of any criminal. Crime is now recognized as a social disease, no case of which can be pronounced incurable. The next step is to train social physicians to become experts in the treatment of this malady, and then to intrust all patients to their care. Meantime side by side with this procedure social hygiene must be employed to counteract the unsanitary social conditions amid which this disease is generated. This is a long task, but it is as sure of success as Dr. Gorgas was in rooting out yellow fever from the Panama canal zone by exterminating the stegomyia calopus.

After intoxicants have been banished from Honolulu and every other spot on the face of the earth, a great part of the crimes of the world will be banished. And if criminals can then be treated by good men and women in the different states and nations we shall have gone a good way in showing the world that "God's kingdom" *is* coming.

The clipping above comes right in line with the work done by Chaplain Kiplinger, mentioned in Our Homes.

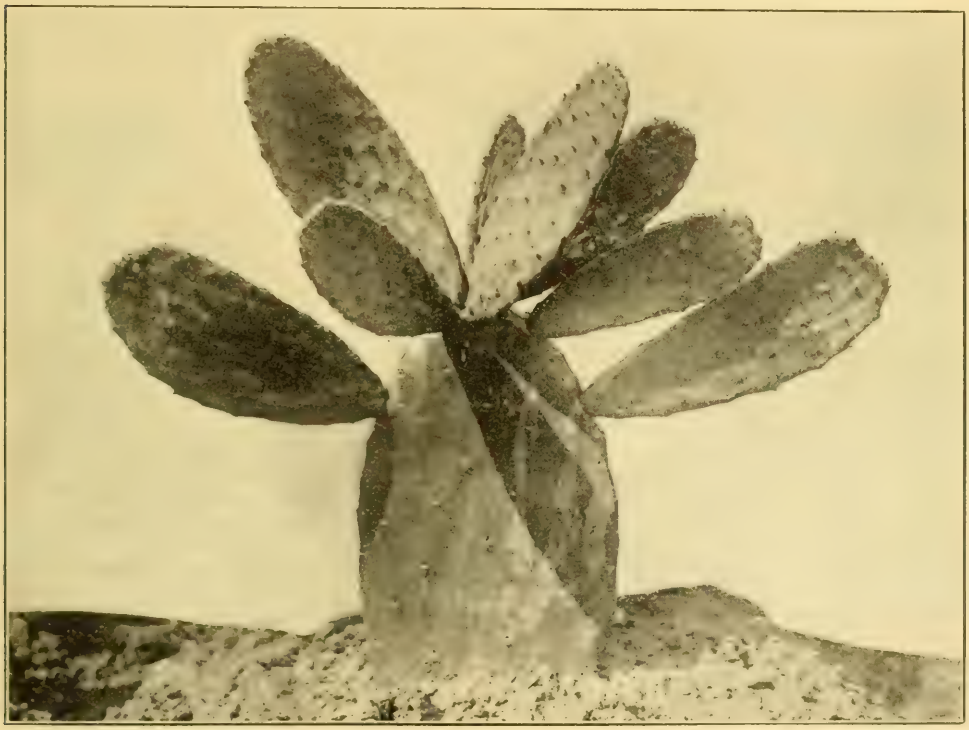
HIGH-PRESSURE GARDENING

SPINELESS CACTUS, ONCE MORE; WHAT OF THE FUTURE?

By comparing the picture adjoining with the two pictures shown in our issue for Aug. 15, you will notice the growth in 29 days has hardly been equal to that made in nine days the last of July. Very likely the slower growth was due largely to the excessive rain. In fact, it has rained almost every other day, and sometimes *every day*, clear on till near the middle of September. We learn from good authority that so much wetness is pretty sure to produce rot; but in order to *obviate* the effects of so much wetness I dug a ditch or trench and piled the dirt up around the cactus so as to form a sort of pyramid. Then I made a ditch to carry off the surplus water; and I am inclined to think, especially on heavy clay soil, like that of our Medina clay, the cactus should be planted on a ridge, very much as they grow sweet potatoes in the South. So far I notice no tendency to rot. Should frost occur I expect to cover the plant with canvas; and when it becomes severely cold, toward the first of November, I shall pull off the new slabs and pack the whole plant so as to take it in my trunk down to Florida. My impression is, these slabs can be kept several days or even weeks without impairing their vitality. In fact, we are told that the slab starts better after being kept out of the ground so as to become somewhat wilted.

SOMETHING ON THE OTHER SIDE OF SPINELESS CACTUS.

In a recent issue of the *Florida Grower* appeared an article by Fred N. Burt. Mr. Burt became enthusiastic about spineless cacti; visited Wyoming, Colorado, New Mexico, Arizona, and California; talked with Burbank himself and other promoters of cacti; and although Burbank told him he feared it would not succeed in Florida on account of so much rain, he pushed ahead in his project of growing cacti for beef cattle in Florida. He even went so far as to purchase toward a thousand slabs comprising the best varieties. Below is an extract from what he says about it:



The spineless cactus (pictured on page 691, Aug. 15) 29 days later. Photographed Sept. 2.

They were received by me in splendid condition at DeLeon Springs, Florida, on April 9, 1914, and

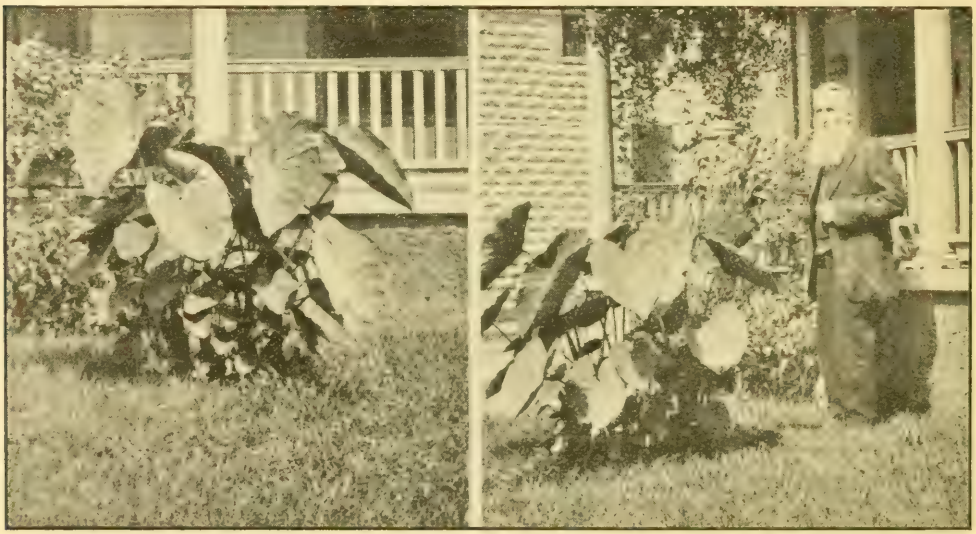
placed on high, dry, sandy soil. Every instruction was carefully followed, and for the next sixty days the plants seemed to prosper. Then, slabs commenced to show rotten spots; and on opening them up we found they were filled with soft white worms resembling a maggot. The outside edges of the slabs were also attacked by a hard hazelnut-shaped bug which bored holes along edges.

We used a solution of arsenate of lead spray, whale oil, sulpho-tobacco, and other sprays without results; have carefully and frequently examined plants and destroyed the pests; have written to every one whom we thought might suggest a remedy, but without securing any relief. The entire field is now just about finished, and I expect soon to plow under what little is left.

None of the promoters of spineless cacti admit that this plant has any insect enemies—in fact, I have observed advertisements that stated that it has no insect enemies. The rainfall in Florida is more than twice the amount Mr. Burbank stated it could ordinarily stand. While in California I was not told that experiment after experiment had been tried in Florida, and was allowed to believe that I was a pioneer.

The Agricultural Experiment Station at Gainesville, Florida, states, April 2, 1914, that "Spineless cacti planted in the state in the last six or eight years have all gone to the bad. It seems that the spineless-cactus salesmen have been the only ones who make anything out of this."

Perhaps most of the friends would think that after the above report I would give up thinking I can grow cacti with profit in Florida; but let us consider a moment. This man went in on a large scale the very first thing; and I would urge, and have urged for years past, that no one should undertake to keep bees, chickens, or grow any crop, especially in a new locality, until he has first experimented on a small scale. Do not go in heavily on any new thing to start with. The main trouble mentioned in the above is the insect enemies, and these may have been a feature of that particular locality. Another thing, in starting any new crop, whether it is celery, strawberries, corn, and I might almost say *wheat*, in any untried locality, there are usually more failures than successes. In fact, there are failures everywhere. Look about you wherever you may be located; take a trip on the cars, and see how many failures there are to one real success, and see if it is not true that it is largely in the man (or boy) who goes at it. I am not going to try to grow cactus on a large scale; but I expect to try to grow enough to give my chickens green food; and I will try to give you some pictures as I go along. One thing I have spoken of already is that spineless cactus in Florida and here in Ohio can be *made* to make an astonishing growth in just a few days or a few weeks.



Dasheens in Dayton, Ohio.

"THREE CENTS AN HOUR;" DASHEENS IN OHIO; REMEDY FOR CUCUMBER-BUGS; IS IT EVER RIGHT TO GO TO WAR?

Dear Bro. Root:—Although I am out of the bee business I want the journal for Our Homes, etc. I read several times over the May 15th issue. It alone is worth the price.

I want to say a few words about your paying boys three cents an hour years ago. Well, when I was 14 years old I hired out on a small farm for $2.50 per month for seven months. I went to school five months without pay—only my board. I bought my own clothes. The fifth year they paid me $4.50 per month. At 19 I set in to learn the shoemaker trade. I served three years as apprentice; got (big pay, of course) $16, or $48 for the three years, board and washing included. I saved my money, and always had a little for the Sunday-school basket. Some of you young kickers don't know what your fathers had to contend with. Common laborers received 75 cts. to $1 per day, and raised their families too.

Last summer my grandson took a snapshot at my front yard where you see the dasheen and your

humble servant. They were just 41 inches high. I had a fair yield; ate some of the bulbs, and found them very good. I did not use the stalks or leaves. I had it as an ornament in the front yard. I have no room in my back yard.

Some years ago I had planted quite a lot of cucumber seeds. They came up nicely; but one day the striped bugs came by the hundreds. The creek bottom being close I went down and pulled up a big armful of spearmint. Some call it peppermint; but it is spearmint. I dropped a bunch of the mint on each hill, and went home. Next day there was not a bug about. I did not bother any more that year, and the green mint kept the ground moist several days.

Now about the war. I agree with you in your answer to the young man (Mr. Gibbon). I carried the musket in our Civil War 50 years ago. While I am for peace, yet, old as I am, if the flag demanded it I would shoulder the musket again. If I could not stand up I could lie down to it. May the good Lord bless and keep you in good health many more years is my prayer.

Dayton, O. H. BRENNENAN.

HEALTH NOTES

DEAFNESS—THE BORACIC-ACID REMEDY.

Since the article in the July 1st GLEANINGS appeared, exposing, as I supposed, an intended humbug and fraud in regard to "enserol," I have had quite a number of letters something like the following:

Mr. Root:—My wife has become interested in what you have to say about the use of boracic acid in GLEANINGS for July 1. She is bothered with a roaring in her head, and wishes to try the treatment named, and would like to have you tell just how to use it—whether warm or cold water, and about what proportion or strength to have the wash. Also how often.

Bates, Ark., Aug. 2. H. C. BETHEL.

I wish all the friends who want to know all about this matter would hunt up GLEANINGS for September 15, 1914, as that gives all the information I am able to furnish. The directions I copied from that "woman's story" I give again as follows:

This is the copy of the prescription given me:

Pure glycerine, ½ ounce; fluid enserol, 1 ounce; boiled water, 2½ ounces. Mix.

Put one drop in both ears, night and morning.

Wet the forefinger, and rub the solution full strength, behind and below the ears.

Pour ten drops of solution in one-fourth glass of warm water, put some in palm of hand, and snuff up the nostrils, night and morning; also gargle the throat with the same strength solution as used in the nostrils, night and morning.

But instead of buying the expensive enserol, use boracic acid. I think your druggist should be able to tell you about how much.

Here is something from one who has been a good friend of GLEANINGS for many years that seems to be a sensible explanation for the roaring in the ear:

Mr. Root:—The "roaring sound," as it is commonly styled by those who experience difficulty in hearing, is not an indication of deafness, but that the drum of the ear is still in a healthy condition, and that the passage from the outside to the drum has become closed with wax-secretions, preventing sound waves reaching the drum, which in its muffled condition will then record the faint sounds made by the blood as it gurgles through its veins. A similar effect is obtained by a healthy ear being covered by the shell of a sea conch.

Procure a water-bag with a piece of hose attached; or, if you can obtain a small jet of water in any other manner. Have some one direct the jet into the ear for a minute or so, when the lumps of wax will come out, sometimes tubular pieces the size of the ear in diameter, and an inch long. Water will do this work splendidly, and there is absolutely nothing gained by using drugs.

Lake Roland, Md. BENJAMIN B. JONES.

Before receiving the above letter I had satisfied myself that the roaring was caused by some of the "machinery," if you will excuse the word, in the patient's body; and I rather decided that the coursing of the blood had something to do with it. Friend Jones suggests that pure warm water may be as good as the remedy. I am inclined to think, however, that the boracic acid and glycerin more thoroughly cleanses the nostrils, throat, and ear, than pure water alone.

I used it according to directions twice a day for a month or more; and the passages between the ear, throat, and nostrils were certainly cleansed better than I had ever been able to get them before; but I cannot detect any improvement in my hearing. Some years ago I sent to some doctor out west for an apparatus and medicine to restore hearing. He advertised "no cure, no pay." A part of his instructions were a systematic massage with the fingers around the ear, throat, etc. After following his directions I decided there was at least some improvement in my hearing, and I sent him the five dollars. I think I wrote him that my opinion was that the massaging had more to do with the improvement than the medicine. A year or so ago a good lady somewhere in the East wrote me she thought I could get help by giving my face around the ears a good rubbing with the fingers twice a day or more; and she gave minute directions how to do it. If she should see this and will kindly give it again I shall be glad to publish it. I have lost her address, and therefore cannot find her kind letter just now.

Friend Jones suggests that the roaring is caused by the passages being stopped with earwax, etc. But the enserol and glycerine will remove all accumulations in the ear better than anything else I know of. At the present time I have not noticed any

roaring for some time back. I think it is more apt to occur when I catch cold.

Let me suggest in closing that a thorough cleansing and washing of the whole body every day is certainly a good investment of time—much better than depending on drugs of any kind. Let me say again that I give my whole body a thorough washing every day of my life, and this includes eyes, ears, throat, teeth, and everything else; and in washing my head I devote extra time to massaging with my fingers all around my ears and throat in order to stir up to activity as much as possible these useful and important adjuncts to the enjoyment of life. After being thoroughly washed and rubbed, while free from clothing or other obstructions, I swing my arms and go through with my physical exercises I have before mentioned, so as to get up an appetite for breakfast; and after I get dressed up I feel in excellent trim to go out and hoe in the garden until Mrs. Root pounds on the window. About that time I am in good shape for *breakfast,* you may be sure.

THE PATENT-MEDICINE BUSINESS AND QUACKERY.

I hold in my hand a 24-page pamphlet sent out by the American Medical Association, of Chicago, entitled, "At the Bar of Public Opinion." This pamphlet quotes from thirty to forty leading periodicals in regard to the patent-medicine business. Among them are *Collier's Weekly, Harper's Weekly, New York Tribune, Burlington Hawkeye, Chicago Daily Tribune, Labor World, Cleveland News,* and the *Rural New-Yorker* We quote from the latter:

> When all publishers realize, as all will be forced to realize, some day, that they cannot retain the respect of their readers and print sermons on one page and advertisements of fake medical nostrums on another, there will be less need of government supervision over journalistic enterprise. The very fact that "a sick man will try anything to get well" places an obligation upon publishers which they can no longer afford to ignore.

It seems the whole wide world is waking up to the waste of money and damage to health that comes from the drug habit or from answering some newspaper advertisement instead of consulting a family doctor or some educated physician who has the reputation of being a good honest man. The editor of the *Rural New-Yorker* made use of this expression in a private letter received a few days ago:

> The idea of doctoring a man by mail, never having a chance to see him or examine him personally, has always struck me as a fool proposition.

Of course the quacks and patent-medicine venders say the doctors are against them because it injures their business; but I think this is a mistake. Much of the business, especially the serious and difficult business that our doctors have to meet, is the patient who is seemingly beyond recovery from the use of stimulating or habit-forming drugs. I know something about the matter, for a near and dear relative found she could not go on with her work in the office without the use of headache powders; and she kept on using them until she was suddenly stricken down; and in spite of all the aid a competent physician could give she died in just a few hours. Why, I am ashamed to confess that, years ago, we kept headache powders in our store, so that any of our help in any of the different departments could go on with his work by using headache powders when otherwise he would have to go home and take a rest.

This same pamphlet I have mentioned contains a list of leaflets exposing and explaining the various medical fakes such as cancer fakes, consumption-cure fakes, epileptic-cure fakes, medical institutes, mineral waters, oxydonor and similar fakes, sanatogen, cure for drinking, smoking, etc.

Just a word about cancer and consumption. I believe that the general opinion of those who are best able to judge is that *every medicine advertised* to cure cancer and consumption is a fake. Of course all these diseases may often be cured, but the cure does not come from the stuff that you get out of a bottle. Consumption is cured by getting in the open air, getting interested in something that not only occupies the mind but the body as well—every muscle of it if possible. A few years ago a man who was pronounced incurable by the doctors on account of consumption took it into his head that he could go to California on foot. When he started out he could walk only a short distance without resting. But he had pluck enough and faith enough to keep on; and he soon discovered that he could walk a little further every day than he had done the day before. In this way he got well and strong.

Down in Florida you can find almost any number of people who got well after the doctors had given them up by going down there and keeping chickens, bees, or making garden. They simply got busy and happy with something that kept them *outdoors* under's God's blue sky every hour of the day. Some of them not only worked outdoors but slept outdoors and *ate their meals* outdoors. When the world wakes up to the fact that this is the only way to get well, the venders of stuff put up in bottles will be driven to some other method of making a living.

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Gleanings in Bee Culture

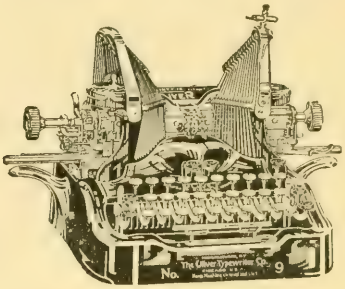


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17 CENTS A DAY! Remember this brand new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—plus the Optional Duplex Shift, Selective Color Attachment, and all other new new-day features.

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The Oliver Typewriter Co., Cleveland, Ohio

946 Prospect Avenue

Gleanings in Bee Culture

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EDITORIALS

Our Cover Picture

The picture on our cover shows an apiary near Oak Point, Wash., belonging to Mrs. L. Schmitt. Mrs. Schmitt, since the death of her husband, has been managing the yard herself with the help of a hired man.

The hills back of the apiary look like burnt-over timberland. As might be expected, the willowherb, or fireweed, as it is called (*Epilobium angustifolium*), is the chief honey plant, the main flow coming in July and August.

The Smoke Method of Introducing Not an Unqualified Success

For some reason the smoke method has not proven to be as successful this year as last. Whether the season has had anything to do with it we cannot say. However, in our own apiaries we have gone back to the cage method, which, all things considered, seems to be the most reliable. We do use, however, the smoke method of introducing virgins. But most virgins are allowed to run into the entrance of the hive when a day old, care being taken not to allow them to come in contact with the fingers. This method of introducing is used mainly with nuclei and not with full colonies.

Aster Honey—when it Can and Cannot be Safely Used for Food

It came to our knowledge a few days ago that one of the old veteran beekeepers who has used a great deal of aster honey as a winter food in years past has found that this honey is perfectly safe when it is *all sealed*. It is when much of it is unsealed, according to this same veteran, that it brings on dysentery and death to the bees. When he finds much of it unsealed because the asters have ceased to yield nectar he forces the bees to fill the cells, and cap them over by feeding sugar syrup. In this way the bees consume sugar stores first, and later on well-ripened aster honey.

It is safe to say that sealed honey of any kind is better at any time than unsealed. The same can be said of sugar stores.

Death of Another One of the Veterans

Just as we go to press we learn that Mr. H. R. Boardman, of Collins, Ohio, the man who had the reputation for many years of never losing any bees during winter, passed away Oct. 1 at the ripe age of 80 years. Quite fortunately we had prepared a little sketch of his life before he died, and it appears on page 322 of last year.

Mr. Boardman was one of the best beekeepers in the United States—one of the early advocates of sweet clover as a forage plant for bees as well as stock, and a man who seemed to have the faculty of wintering bees year after year without any loss. He also was the first to show that the sun's rays, when properly applied, would prevent the granulation of honey.

He was a keen observer, a successful honey-producer, and occasionally wrote for these columns in years gone by.

So it goes. One by one the veterans are leaving us.

Filtering Honey

Dark honeys in general do not sell as readily as clear water-white honeys, such as alfalfa and white clover. An inexpensive method of filtering and refining extracted honeys like buckwheat and aster is being sought by the Federal Carbohydrate Laboratory in Washington. The laboratory workers have passed dark-colored honey through bone char and secured a product as clear as crystal.

The only drawback to a general employment of this method of filtering is that the cost of bone char is about $60 a ton. Ordinary charcoal is cheaper, but not so effec-

tive. With the co-operation of the Forest Service the Laboratory is now looking for a cheap wood charcoal which will take out the color, and experimenters believe that they will soon find it.

If such a process of filtering dark honeys and syrups can be made so cheap as to become available to the ordinary honey-producer, a great deal of honey which has been going for manufacturing purposes, or has been fed back to the bees, can be placed directly upon the retail markt. There is still a qustion, however, whether such a process could ever be made so cheap as to bring such honeys as the inferior tropical grades into competition with the best white clover, sage, and alfalfa, now on the market.

Ohio State Convention

THE Ohio state beekeepers will meet in convention at Akron, O., Nov. 26, 27. Dr. Phillips has promised to be present and give an address; and it is expected, also, other prominent beekeepers from outside the state, as well as those locally, will participate on the program.

Akron is the home of the rubber industry of the United States, and an opportunity will be given for the members to go through one of the big rubber plants, and possibly visit the Barber farm, owned by O. C. Barber, the match king. Mr. Barber has a model apiary on his place. Further announcements will be given later.

Nosema Apis, Bee Paralysis, or What?

SINCE our editorial on page 784, Oct. 1, we have received quite a number of letters from subscribers, telling of the peculiar malady which has come and gone, but which does not quite tally with the symptoms given for bee paralysis. The presumption is that it is nosema apis; but if it is not that disease it is evidently the same thing that has wrought such destruction in the Mississippi Valley northward in Wisconsin, and up and down the Pacific coast. The following letter from A. R. Miner is a fair sample of some we have been receiving:

I am writing to get some information. For the past two years I have noticed my bees dying off at intervals. The disease is something similar to paralysis, but I do not notice any swollen condition. The bees seem rather to shrivel up. For three or four days they will die by the thousands, then all of a sudden they will seem to be all right again. I have noticed that they die mostly when cool days hinder their flying in fall and spring. Some hives are not affected, while others beside them become so weak that they make scarcely any surplus honey.

I have sent some of the dead bees to Washington, D. C., and received the reply that they could not tell from the bees sent what was the matter. I thought perhaps you could help me. If you can, it will be greatly appreciated.

Fowler, Cal., Sep. 28. A. R. MINER

We shall be glad to get an exact description of the disease that has been killing bees this summer in the different localities mentioned, or anywhere else in fact. We do not care for letters describing a mild form of bee paralysis; but what we do desire to get is a description of the malady that is killing so many thousands of bees, in some cases resulting in the almost complete destruction of the entire colony.

J. E. Wing, Apostle of Alfalfa

ANY one who knows alfalfa knows Joseph E. Wing. The spread of alfalfa in the states east of the Mississippi has been due more to his work than to any other cause. His experiments at Woodland Farm, his articles in the agricultural press, his lectures, his books, make him the most prominent authority on alfalfa in the United States, and that at once interests western beekeepers, so closely are their interests tied up with the prosperity of alfalfa.

Joseph Wing died Sept. 10 at his home in Mechanicsburg, Ohio, at the age of 54 years. "Alfalfa in America" was his best-known work, the one which made him famous. He wrote three others, "Sheep Farming in America," "Meadows and Pastures," and "In Foreign Fields." In all of them his charmingly intimate style is the delight of readers.

There is no branch of agriculture in this country but has felt the impress of his brain and hand. Not a beekeeper, his contribution to beekeepers in publishing the gospel of alfalfa and sweet clover has never been fully appreciated by them.

A Word of Warning in Marking the Minimum Net-weight

WE have learned that quite a number of producers are marking all their comb honey with one rubber stamp reading "Weight not less than 6 oz." A larger number are using a stamp, "Not less than 10 oz. net." They put all their honey in a shipping-case indiscriminately, marked in the same way.

The fact is, ordinary good comb honey produced with separators runs anywhere from 10 to 12 ounces minimum. We have learned from high authority that the federal Government considers low marking of comb honey as a serious contravention of the

law, and that parties that are marketing their product in this way will probably be subject to the regular penalties.

The Bureau of Chemistry has ruled that when the minimum net-weight principle is used, it must indicate as nearly as practicable the actual weight of the section. To mark every section "6 oz." defeats the *very intent* of the law, as can be readily seen. Technically it may comply with the law, but in spirit it does not; and Uncle Sam has given us the word that unless the practice is discontinued he will hold the guilty parties severely responsible.

Increasing the Demand for Honey Cakes; a Suggestion to our Readers

If every reader of this journal would take pains to inquire for honey cakes or cakes that contain honey at the local grocery, it would increase the demand for honey foods enormously. Enormously, did we say? Yes, providing *every* reader does make these inquiries. The grocer will put in a larger stock and make an effort to push the goods.

Most of you have honey for sale. Why not increase the demand for honey cakes and thus, of course, the demand for medium grades of honey used for cooking and baking?

Then why does not somebody put up a canning-factory using honey as a sweetening agent? The honey business and the fruit business depend on bees. Why not build up both lines so there will be a larger demand for honey? Fruits canned in honey! The very suggestion sounds good and is good.

The Ontario Crop Report Again

On p. 698 for Sept. 1st we gave Mr. Morley Pettit credit for the complete honey crop report issued. Referring to this he begs leave to make some corrections. He writes:

Mr. Root:—I wish to thank you for your kind words in editorial, page 698, on crop reports in Ontario, but feel like making one or two corrections.

The credit for the work of crop reporting in Ontario is due more largely to the committee—Messrs. Wm. Couse, H. G. Sibbald, and W. J. Craig, than it is to the secretary, in that the work was inaugurated in 1903, when the present secretary was a very junior member of the Ontario Beekeepers' Association. Then, while the report is from 19,107 colonies, it is from only 300 members, and is valuable for averages, but not for totals. I would not go so far as to say that this report gives much of an idea of the amount of honey in sight in Ontario; at least, we are far from satisfied with the fact that only 300 out of about 1400 members reported, and that there are at least six or seven thousand beekeepers in Ontario who are not even members. It is true, however, that this annual report has been of great value in standardizing prices of honey. Dealers have come to watch for this report with the same interest and confidence as beekeepers, and some have gone so far as to become members of the Association, so as to be sure of receiving our publications regularly.

The "Dark-honey-crop Report" recently issued, a copy of which I am enclosing, shows that, in spite of the depression, owing to war conditions, honey is selling freely, and is going to be looked upon by many as being as much a necessity as fruit, at least.

Guelph, Ca., Sept. 14. Morley Pettit.

A Manual of Bee Husbandry for New Jersey

There has just been issued by the New Jersey State Board of Agriculture a book on bees, of 72 pages, by Elmer G. Carr, deputy of the State Entomologist in bee-inspection work. The conditions in New Jersey are quite peculiar. There are almost no large beekeepers in the state, and the flora is comparatively limited; but according to Mr. Carr's manual the industry can be very materially developed. Instead of averaging only 14 lbs. per colony it would be possible with a better knowledge of bees to secure nearly 50 lbs. In fact, this bulletin was issued in order that a "more thorough and widespread knowledge of the general principles of good bee management" might be available.

Mr. Carr is a good beekeeper, and, so far as we have been able to go over his work, we have found it correct and orthodox in its teachings. It was prepared with special reference to conditions in New Jersey; and every beekeeper in that state, at least, and, in fact, every farmer and fruit-grower in New Jersey, should secure a copy. We presume it can be obtained by residents of the state by a mere application to the State Board of Agriculture, Trenton, N. J. Ask for Bulletin of Bee Husbandry by Elmer G. Carr.

The Abuse of "Bait Sections," the Danger of Feeding Back to Finish up Comb Honey

A large buyer of honey recently told us that many comb-honey producers are making a mistake in allowing their "bait sections" to go in with the rest of their comb honey that is sent to market. These "baits" are always inferior to the combs produced on foundation, built out, filled, and capped the same season. The great trouble with the "baits" is that they granulate almost immediately after they leave the producer's hands; and a section of granulated honey

in a case of good honey is almost sure to knock the price of the whole case clear down.

After the producer sells a large shipment of comb honey, the honey is out of his hands. The buyer turns around and complains that he has found granulated sections in many of the cases. Fearing that every section will granulate like the "strays" he has seen, he will knock off a cent or two from the agreed price "because the honey was not as represented." Producers should always put the baits by themselves, and sell them locally if possible; but under no circumstances put them with the rest of the comb honey.

The producer can hardly avoid the use of bait sections in the first super; but there will be no need of using them in a second, third, or fourth super. Let us suppose the producer has a crop of three supers per hive. One-third of the supers would have a single bait. That bait shows up wrong almost at the start, and the result is that the buyer when he finds it in a nice case of honey is afraid of the whole shipment, and he pays accordingly. Possibly the beekeeper might recover by bringing suit, but it would never pay him to go to court when only a cent or two is involved, so he would take what he could get.

FEEDING BACK TO COMPLETE UNFINISHED SECTIONS.

This is practiced by some of our best producers; but the product is always inferior to the regulation comb honey. Even if one uses very light-colored extracted to finish out some of his sections, the product when it appears in the section is darker than the rest of the honey. We do not know why this is so, but it is so. Buyers nowadays are becoming very discriminating; and it is our opinion that all fed-back sections as well as baits should be sold around home. Never mix them with the other comb honey for the general market.

Can You Beat it?

We have a letter from William Lossing, of Phoenix, Arizona, one of the largest honey-producers in the country, in which he says he has loaded what he believes is the largest car of honey that was ever shipped. He had an order, he explains, for a carload of honey—"the larger the better." He accordingly secured the biggest car he could, and crowded in 646 cases, or a total of 87,589 lbs. The average car does not go above 40,000 lbs. If any of our customers or subscribers have ever been able to beat this, let them speak out.

Incidentally it may be well to remark that there might be considerable danger in making such a heavy load of honey as this. Many of the western cars have a capacity of 100,000 lbs., and these weights carry with them permission to add 10 per cent more. It is evident that our friend, unless the car was a very large one, must have piled these cases clear up to the ceiling in the car. The bottom cases must, therefore, have had an enormous weight on them. Moreover, such weight, subjected to the violent jerking, backing up, and starting of a whole freight train would be almost sure to cause leakage in the bottom cases. Unless one takes a ride on a freight train he can have not the least conception of the fearful pounding that a freight car receives.

Taking everything into consideration, we question the advisability of loading so large a car with honey. One might pile in pig iron, wheat in sacks, and other commodities, and the danger of loss would be comparatively slight.

We shall be interested in learning how this car got through.

The Freight Classification Committee's Designation of Comb Foundation as "Bee Comb."

A SUBSCRIBER has written us a vigorous protest against billing comb foundation in express and freight shipments as "bee comb." He says he has observed that railroad men have the impression that this is artificial comb, because it is sold by the bee-supply manufacturers to the beekeepers, and he thinks it is high time we should stop fanning the flame of the artificial-comb-honey-canard.

We have written our correspondent that the supply manufacturers had nothing to do with the term adopted by the Railroad Freight-classification Committee, and at present they are powerless to affect the change. These people do not know what comb foundation is, and therefore put into the classification a term which to them expresses what the article is; but the trouble is, it expresses altogether too much.

We suggest that, when the classification committee meets again, the manufacturers of bee supplies, especially the makers of comb foundation, request the elimination of the term "bee comb" and substitute the usual term of comb foundation, for that is the term that exactly expresses the name of the article itself.

We shall endeavor to give an announcement when this classification committee

meets again, and will then request that our subscribers pour in a mass of letters to the committee, explaining why this peculiar designation on the part of the railroad companies is doing harm to our industry. A systematic, united, and concerted action on the part of all parties interested will bring about results.

There is another reason why the term "bee comb" should be eliminated. Real honey-comb would be more expensive and much more fragile—that is, more subject to damage than comb foundation. If the railroad companies have an idea that the article is exactly what it purports to be, as shown by the name "bee comb," and they probably do, they would charge a higher rate of freight. From an economic standpoint beekeepers and manufacturers alike should seek to get another form of billing that will help us to get a lower rate of freight. It is excessive as it is.

Granulation of Honey Hastened by a Wide Variation in Temperature

WE quite agree with Mr. Holtermann in what he says on this subject, p. 799, last issue. Some years ago, during very cold weather, we conducted a series of experiments in this matter. The winter was very severe, and for over six weeks the temperature ranged around zero outdoors, much of the time below.

We placed some liquid honey in a building where there was no artificial heat. This was left undisturbed during the entire winter, but it did not granulate till toward spring. We also placed some of this same lot of honey under conditions of *varying* temperature. Part of the time the mercury went down below zero and part of the time up to 80 F. We tried to have as much variation as possible with low dips, every now and then to below zero. In the course of ten days cloudiness appeared, and in a month's time granulation was complete.

Another lot of this same honey we kept in a *uniform* temperature of 70 to 80, but it did not granulate the whole winter nor next spring. The following spring, when the weather began to warm up, the honey that had been long subjected to a zero temperature for six weeks granulated; but the same honey that was kept in a warm room remained liquid.

These experiments, repeated at other times with the same result, go to show that cold is more conducive to granulation than a warm atmosphere, and that a *variable* temperature is far more potent than either.

Comb honey, unless it is very well ripened, should not be put in a cold room except temporarily, just before placing it on the table. In a zero cold or even a freezing cold comb honey cannot be handled without danger of breakage and leakage. Our comb honey, tons and tons of it, is always stored in a temperature of between 75 and 80, kept warm by means of steam heat or with a gas-stove when steam is not available. We would not, for a good many dollars, allow the temperature of the comb honey in our storage-room to drop to a freezing temperature for more than a short time.

Comb or extracted honey put in an ordinary ice-box or refrigerator for a few hours before eating is always improved; but at all other times it should be kept away from a cold atmosphere—particularly one that is changeable.

A Case of Chilled Brood in October

A BEEKEEPER in this county, some twelve miles from us, and eight miles from our nearest bees, came to our office one day, and said that something was awfully wrong among his bees. Most of them had carried young dead brood—lots of it—out in front of the entrances. The brood was white—that is to say, not discolored, nor anything like foul brood. He wished us to drive down and see what it was.

Knowing he had foul brood a year or so ago, we suspected this had something to do with it. We drove down in our machine, and examination showed quite a lot of young brood in the imago state in front of some of the entrances, that had been hauled out of the cells by the bees. Apparently the brood advanced to the stage just before the wings were formed, and then died. We went through several of his hives, and found that in every case where white dead brood was in front of the entrances the colony was too weak to keep the brood-nest warm. In at least four cases the colony had been reduced by American foul brood, and in several others the owner had put on upper stories of wet extracting-combs which he said he placed there temporarily for the bees to clean up. Shortly after this came a cold spell with a light freeze. This lasted for several days.

Colonies having brood-nests twice their normal size, or colonies reduced by American foul brood, had evidently contracted their clusters so that some of the sealed brood, at least, had chilled and died. This the bees removed, with results as stated.

We told our friend that he must get busy and clean up his American foul brood, or he would have something worse on his

hands than chilled brood. We noticed he had some old hives and some old combs under a shed. The covers did not fit very tightly, and robbers were smelling around. Most of the hives were old and home-made, with gaping cracks. We promised to send one of our best men down to help our friend out, because we cannot afford to have this condition of things even eight miles from our nearest outyard.

A word of caution should be entered right here, either to unite colonies that are not very strong, or contract their brood-nests. Too much hive capacity is bad. When the bees can hardly fill one story, it is folly to put on one or more stories of wet combs, and leave them there after a cold spell of weather comes on. There is nothing serious about a little dead brood; but all good healthy brood at this time of the year should be allowed to hatch. Every young bee is worth a dozen old bees for wintering.

Dr. Phillips' New Book, "Beekeeping"

Of the making of books there is no end, the wise man said. One would almost think there was no room for a new bee-book; but in Dr. Phillips' work, a preliminary notice of which appeared on page 739, Sept. 15, we have something new and unique. It covers a field only partly covered by others. How does it differ from other standard works on bees?

One would naturally suppose that its author, a scientific man—a trained entomologist, and one who is constantly associated with some of the best scientists of the Government—would turn out a book that would be so technically scientific that it would be beyond the reach of the average beekeeper. This is not the case. While it is scientific, it is couched in such language and style that the average reader can easily understand it. But when we say it is scientific, we might, without further qualification, convey the impression that it is not also practical. As a matter of fact, the book is intensely so, because Dr. Phillips has traveled all over the United States, mingling with the best beemen in the country, and he has had, during several years back, one of the best beekeepers in the United States, Mr. George F. Demuth, as his first assistant.

Mr. Demuth, by the way, is a man who has been making good with his bees year after year; and not only that, he has been operating his yards at long range, and still makes them pay. It is that man who has been the constant associate of Dr. Phillips, and who went over the proofs carefully before the book was made public.

As if that were not enough, the author went still further and placed himself in touch with Dr. C. C. Miller, of Marengo, Ill. With manuscript in hand he read paragraph after paragraph to this modern Gamaliel. Dr. Miller, as those who know him best, is a severe critic, and anything that might not be perfectly orthodox so far as comb honey and swarming are concerned, would be caught by Dr. Miller. In the main he approved everything that the other doctor said, offering only here and there an occasional correction.

This work is distinct from any other on bees in that it does not follow in the wake of other writers. It deals with basic principles in such a way that the reader will better understand why this manipulation will work and why that will not.

For example, Dr. Phillips has undertaken the difficult task of giving the main cause of swarming. At first we were inclined to think he might have missed his mark; but the more we have studied his reasons the more we have come to the conclusion that he is probably right. But of this we shall have something more to say at another time.

In the matter of comb-honey production he has followed Mr. G. F. Demuth and Dr. Miller very closely. On the subject of wintering he sets forth some new principles—new, did we say? Well, not quite that either. He has discussed the subject from the standpoint of the causes that lead to failure and the elements that lead to success. He and his assistants in the Bureau of Entomology have made some new and important discoveries on the subject of wintering, some of which have been given in these columns. See page 789, 1914, and again on page 49 of this year. In the light of these discoveries he has set forth some principles that we verily believe will help clear up the subject of wintering, explaining why bees die sometimes and not others, in a way that has not been done before.

We hope, in a later issue, to give some extracts from this work; and while we may not agree with all that its author says, his is a book that the man who keeps bees for the bread and butter he can get out of them cannot afford not to read.

The price of the work is $2.00, and it may be had from this office. It contains nearly 600 pages, well illustrated with pen-drawings that bring out all the details that it is possible to show. It will be clubbed with our own work, The A B C and X Y Z of Bee Culture, for $3.00, or with Gleanings for one year for $2.50.

Dr. C. C. Miller STRAY STRAWS Marengo, Ill.



"HONEY is not apt to be used as much in extremely hot weather," p. 786. Is not that chiefly because honey is a heat-forming food, and so, like fats, is craved less in hot weather?"

GRACE ALLEN, p. 791, speaks of a meet of seven beekeepers, and says it was a good meeting. Even in a meeting of a hundred, it's the few of the right sort that make it good. One of the best beekeepers' meetings I ever attended was last labor day, with an assembly of three!

J. E. CRANE, I'm much interested in seeing that you replace old or inferior queens with virgins or queen-cells, p. 748. Now the thing I'm anxious to know is how many of these swarm out. I have an assistant who nearly has a fit every time I talk of putting a virgin or a cell in a full colony—says they'll swarm and go off.

J. L. BYER, p. 794, you express surprise that so good authorities have not heard the queens calling except on comb. If you call Editor Root and myself authorities, we both agree that a queen often pipes outside a hive, only he thinks the virgin says the same thing outside the cell that she said in it, and I don't. [See answer to another Straw on this question.—ED.]

WHILE it is true that bees nearly always work on the same kind of flower on the same trip, and, indeed, in many cases throughout their whole lives, yet I have seen (I think never more than twice) a bee going back and forth to flowers not related. I don't know why—possibly because forage was so scarce that she was glad to visit any and every flower she could find. [It is the exception that proves the rule.—ED.]

"THE Mineral Constituents of Honey," p. 797, is worthy of widest publication. I doubt if one beekeeper in a hundred realizes the importance of minerals in honey. Take iron alone. For years physicians have been always seeking for some better form in which to administer it, yet here it is in the best form in the most delightful vehicle, and yet for the most part ignored. I believe I'm a stronger man for the mineral elements I get in honey. And as a rule bees fed on honey have more vigor than those fed on sugar, since sugar is utterly lacking in the important mineral constituents.

MR. EDITOR, you ask, p. 790, "Is it not probable that the piping is made by a hatched queen, and the quahking by another one in a cell as a challenge?" Certainly; only it is believed that the challenge is given by the one that pipes. You may be interested in seeing this matter discussed by the Baron of Berlepsch in *American Bee Journal* for 1861, p. 201. He found that the mature young queen (even if only one in a hive) always quahks for a time in her cell, before she emerges and pipes. He gives some very interesting observations, and says: "From these observations it is evident that young queens teet [pipe] and quahk from sheer jealousy; and that every queen, before emerging, quahks for a time, *to assure herself that no rival is at large in the hive.* Not till after her reiterated calls have remained unanswered does she feel herself safe, and release herself by severing the cap of the cell." You then ask, in substance, whether quahking is not the same as piping, only that the one that quahks is in the cell. Most emphatically, no. Whatever difference there may be from imprisonment in cell, there is one distinct difference that cannot be accounted for in that way —a difference that it doesn't need a musician to detect, as J. L. Byer seems to think. In piping, the first tone is long drawn out, several times as long as the last, each tone from first to last becoming shorter and shorter. In quahking the tones are all short *and all of the same length.* If a queen should be shut in a cell and should pipe, the first note would still be several times as long as the last, would it not? And in that respect it's utterly different from quahking. [We fail to see yet why piping and quahking cannot be made by the same organs and in the same way. While the notes are more prolonged in one case than in the other, is there any reason for it except that the waxen cells are nearly air-tight? and, moreover, bear in mind this: The noise, whatever it is, is made by the wings. We have seen queens pipe in queen-cages in our office. The wings make a tremulous motion, very plain to be seen. When the young queen is in the cell she probably does not have room enough to vibrate her wings as freely as she does when outside. She does the best she can; but her efforts in her narrow quarters of necessity result in a different sound. If you ever *saw* a queen pipe (and every queen-breeder has seen them do it hundreds of times) you will have noticed the vibratory movement of the wings close to the thorax.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



On page 651, Aug. 15, the crop in Ontario is given as fifty-five pounds per colony. Is this comb or extracted honey?

* * *

A bunch of sweet-clover blossoms, white and yellow mixed, makes a beautiful bouquet for the dining-room table.

* * *

The editor says, page 657, Aug. 15, "We should like to know what you mean by breeding from the best." Have we at this time any well-considered standards of excellence for our bees?

* * *

Dr. Miller, page 657, Aug. 15, says the *British Bee Journal* copies a clipping which says that one firm in that country uses 40 tons of honey a month in the manufacture of a cough mixture, and comments, "Some honey." I should say, "Some story."

* * *

On page 481, June 15, Dr. Miller says, "If all 'we men' had voted with me in the last forty years there wouldn't be a saloon in the land," and he is right; but that is not all. There wouldn't be one red-faced, unsteady-gaited man by newspaper courtesy called "drunks" where there are ten now.

* * *

Dr. Miller inquires, page 569, if we can steam a whole box of sections at once with a tea-kettle. Well, no—not unless you have a very strong jet of steam. We took a bundle that we could hold in the hand, allowing the steam to pass through the corners. It takes a little time, but does a good job.

* * *

The sum of $25,000 paid out in one year for advertising honey by the A. I. Root Co. This seems like casting a good deal of bread on the water, expecting it to return after many days. I shall be greatly mistaken if the rank and file of beekeepers don't get some of that bread as well as the A. I. Root Co., when it returns.

* * *

I enjoyed reading Mr. O. O. Poppleton's experience with the Long-idea hive. I confess I was somewhat prejudiced against such a hive until I came in contact with it in his yard. The ease with which it can be opened and examined at any time, even when bees are storing surplus, will commend it to almost any one, especially in the South.

An article by John W. Love, page 668, Aug. 15, on the factor of cleanliness in honey distribution is of much interest. He says, "Comb honey put up in a dust-proof carton suggests delicacy and sanitation more than that displayed in a glass show-case." It is many years since we began to use cartons here in the East, and Mr. Burnett, of Chicago, informs us that they are coming into use in the West.

* * *

Looking over a yard yesterday for foul brood, I discovered one I had been into where robbing had begun. I tried to drive away the robbers with smoke, but the more I smoked the thicker they came. I piled grass and weeds about the entrance, but still they came. Then I placed an empty hive in front of the one they were trying to rob. In a moment they left the latter and rushed into the empty hive that contained some dry combs, and more surprised bees I never saw. The ruse was an entire success.

* * *

Several articles in the Aug. 15th GLEANINGS on aster honey show the widespread interest in this source of winter stores. The objections to it appear to be that it is thin, and bees winter badly on it. Now, I have my doubts as to whether it is any thinner when gathered than other honey or nectar; but it is gathered late, often when the weather is cool, and the bees are, for this reason, unable to reduce such nectar to a thickness or ripeness in the North as to make it a good winter food. Where such is the case I believe it would often be advisable to reduce the size of the brood-chamber to increase the temperature so it could be ripened.

* * *

That extract from the *Rural New-Yorker*, page 567, July 15, is well worth more than a year's subscription for GLEANINGS. I wanted to put in a half-acre, but thought I must first plow the ground—not necessary. And, again, I have wondered how it could be best brought in in pastures. I thought, of course, the first thing would be to plow the old rough pasture—a very difficult job; but from this I learn I can just disk the surface, roll, and sow the seed. It has seemed as though the use of sweet clover for pasture might be more helpful to beekeepers than that sown for hay, as it will be quite apt to get the start of stock and throw out a good deal of bloom the latter part of summer.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Dr. Miller tells us, page 747, Sept. 15, what points he would breed for under various conditions, but omitted saying anything about disease-resisting qualities. Is that not one of the most important points in this day of disease?

* * *

Mr. Frank B. Gunther, of this city, has recently sold his apiary and retired from the bee business. Mr. Gunther has been a beekeeper in this locality for many years, and is one of the old timers. Failing health has caused his retirement.

* * *

Mr. W. T. Cary says, page 770, Sept. 15, "Use two queen-excluders instead of one, with a bee-space between them," as a modification of the Alexander plan for keeping queens apart. I am carrying several queens over others, separated only by screen wire, which, to my notion, is the best plan yet introduced.

* * *

On page 695 I read this headline: "Drone-laying Queen Brood Sometimes a Stinking Mess." Correct! I had some experience in that line last season and this. Last season I was very much alarmed for fear of "black brood," but it proved to be only dead brood dried down in the cells, and otherwise greatly resembling black brood. A change of queens soon corrected the matter.

* * *

There is a beekeeper in this locality who claims to have cured American foul brood in an apiary that was badly affected, without destroying any combs above the excluders, the bees being allowed the free use of the honey. He contends that the honey above the excluders is not diseased; and to my notion he has proved the fact. But it must be remembered that the excluders are not to be removed at any time of the year. Shaking (or any other system used) can be carried on without permanently removing the excluders.

* * *

Mr. Crane says, page 658, Aug. 15, "Do we sing as we work? It is interesting to note that the birds sing the most when they work the hardest during the nest-building and the rearing of their young." Well, most of the singing takes place during the nest-building, Bro. Crane. When the little mouths begin to open for food there is a change in the atmosphere, so to speak, and business takes the place of song. I am "some wise" on this line from my own experience.

* * *

On page 698, Sept. 1, the editor says: "Every time the granulated article is reliquefied some of the flavor is lost." That depends on how it is reliquefied. If the cans are set in the hot sun with the caps left on, the honey will reliquefy without any injury to the flavor. This season I placed a quantity of granulated orange honey in a local warehouse on an upper floor next to the roof. The heat during the summer became intense at times, causing the honey to reliquefy perfectly, yet I do not think any one could detect the slightest injury to the flavor. In my opinion intense artificial heat is the chief cause of the loss of flavor.

* * *

In dividing colonies for increase, the old queen with the old bees should be left on the old stand, and the young bees and a good portion of the brood moved to a new stand. Many do not realize the importance of eliminating the old bees as much as possible before introducing the new queen. It is a good plan to remove a colony to a new place when introducing a queen and placing an empty hive on the old stand for a few days to catch the old bees, after which they may be returned to the original colony on the original position. This is not necessary where there are other hives near for the field force to find their way into.

* * *

Dr. Miller, page 631, Aug. 1, says he has had many cases of laying workers, but does not remember a single case in the spring. Well, as I have before said, that is the most natural time for them to occur with me, and I have seen very few after the season was advanced far enough for the production of plenty of drones. He asks also if I ever knew a case of laying workers and not a whole lot of 'em. Now he has me, and I believe the whole beekeeping fraternity. I never saw a bee in my life that I could point out as a "laying worker." If Dr. Miller has, he is an exception and has enjoyed a rare sight. Following the instinct of the bee it is more natural to think of a colony tolerating only one laying bee to the hive. And, 'way down in the bottom of my heart, I don't believe that any one knows.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



A TRIP TO CALIFORNIA.

If time permits I will take a trip to California this fall. The primary object of the trip will be to visit some of the leading California beekeepers and to study beekeeping conditions as they exist in that state. It is to be a mission similar to that on which the Texas A. and M. College sent me to Colorado a number of years ago. At that time I was connected with that institution as apiarist and foulbrood inspector. During the last few years my connection with the state department of agriculture has been that of apicultural expert. I have always made it a point to gather all the information possible on beekeeping subjects. My main object on the Colorado visit was to look into the foulbrood situation there and the inspection work. My thirty days' sojourn in that state, and the visits to the numerous beekeepers, proved extremely profitable. I am anticipating the same experience in my California trip.

Some of the first information that would be appreciated by me would be suggestions as to the best routing of a trip in order to reach the most of the interesting places that I ought to try to arrange to see. Of course, it will be impossible to make all the important points nor to visit all the beekeepers whom I ought to see; but with such information as I may be able to get from those who will be kind enough to write me, I shall be better enabled to outline an itinerary that will be the most profitable to me. The editor can start the ball rolling, from the fact that he has recently been there. Who else will write me? I shall also be glad to hear from some of my California friends.

* * *

THE SEASON AT PRESENT IN TEXAS.

Rain, rain, rain! There has been hardly a day for the last month or more when we did not have one or more showers of rain. While these were extremely welcome at the beginning, their continuance and the resultant bad roads and delayed work of various kinds have been deplored by many. I had wished most anxiously for these fall rains to set in, long before they came. It had been very drouthy for a good many weeks, and our bees were doing absolutely nothing as a result of the cotton stopping growing long before the usual time. A rain in July would have meant a continuation of our summer honey yield from that source without a stop; but the extremely dry weather put an end absolutely to the honey-flow from the cotton. From similar experiences I knew that only some light rains would mean that the cotton would put out a fresh growth, and our honey yield from that source be increased. Although this has come a little later than usual our bees will still get a nice lot of honey. They are already busy on the cotton, and also on broomweed as well, and some of the wild fall flowers.

These rains seem to have been quite general over the state. While the Southwest Texas section will not reap any surplus honey I feel that the rains have been beneficial in stimulating some of the fall honey-yielding plants to permit the bees there to store up at least some winter stores. The broomweed is the chief of these fall yielders there. Although the honey is rather strong, and yellow in color, it is excellent for winter stores. The beekeepers in that part of the state have had a short crop, except in a few favored localities, and have had to feed their bees in some instances.

Throughout the central and northern part of the state, especially throughout the cotton-growing belt, there has been less complaint. In fact, many of the beekeepers with whom I have had occasion to converse during the last few weeks have admitted that they were getting a better crop than they anticipated after considering the unfavorable spring conditions.

As we use a great deal of extracted honey for packing our bulk comb honey we buy large quantities from other beekeepers every year. Thus far we have already bought over 50,000 pounds this year. Although indications at first were that there would be a shortage of extracted honey, and we were beginning to arrange for procuring our necessary supply from other sources, we have been receiving more offers of extracted honey than we anticipated. Indeed, lately the offerings have been beyond our needs at times. At the present time we have nearly a dozen letters offering extracted honey.

I have mentioned this because it tends to show that there was a good deal of honey produced in Texas in spite of the reports prevalent to the effect that there has been an almost entire failure in the Lone Star State. Our own crop will not be far behind our last year's yield, if not just as good.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



COLORS AND QUEENS.

"Do bees dislike black? Will they try to sting an animal that is black any sooner than they will one that is gray, brown, red, or white? I am told that bees have this special antipathy."

In my younger years in apiculture I accepted the idea as the truth. One day four of us met at one of the apiaries, I wearing a black felt hat, the other three wearing straw hats. It was not long before Doolittle was the target for apparently all of the cross bees in the apiary, the bees getting on that black hat and singing and stinging very much as they will in one's hair. Of course the trouble was in the color.

A few weeks later we met in another apiary, I wearing a white felt hat, and the others had hats of various shades, but none black. To my surprise, I was again the target for the cross bees, as the hat I wore seemed to displease the bees much more than the hats of other colors. They sang and stung away at that hat the same as they had done when I wore the black one. Again we met at my own apiary; and as this was a very warm day we all wore straw hats of about the same color. To my surprise, I was again the target for nearly all the cross bees we happened to stir up—not that the bees attacked my hat more, but they seemed to want to sting Doolittle more than any of the other three.

Then I concluded that their dislike was for my person. And I have found this to be so in the majority of cases wherever I have visited with beekeepers at different apiaries. I have often felt almost ashamed of myself when being obliged to hide my head in a bush or call for a veil when others had no trouble. But of this I am certain: Bees have a great antipathy toward any clothing that is fuzzy or of a hairy nature, and such should be avoided when work is to be done in the apiary.

"Is the practice of cutting out queen-cells at the beginning of the swarming season, to prevent swarming, a good one where one works for section honey?"

Quite a few of our practical apiarists have given that plan as a good one; but from years of experimenting along that line I cannot help thinking that much honey is lost in the attempt to stop prime swarming by destroying queen-cells. And I also think that the attempt to stop after-swarming by the same practice often increases the number of after-swarms. Especially is this true when the cells are cut before all the unsealed larvæ are too old to be coaxed into something that will temporarily answer for a queen. Under the swarming impulse, bees do not take kindly to being allowed just one queen-cell; therefore, when they have any larvæ which can possibly be transformed into something which will take the place of a queen they will do this, and so issue as a "second swarm" with the queen emerging from the cell we have chosen for them, thus leaving the parent colony with but a poor apology for a mother. It is better to wait eight days after the issuing of the prime swarm, and then at night listen at the side of the hive, with the ear pressed against it, for the piping of the first young queen that has emerged. When the young queen is twenty-four hours out she will tell you herself that "there will be a hot time in the old town" tomorrow by the fuss she is making inside during the gathering darkness. In the morning you can shake the bees off every comb in the hive, so that you can see every queen-cell, and miss none; and when all are cut off you are sure of no after-swarm.

"Would not the following be a good way to requeen each colony every year and prevent all increase? Allow the prime swarm to come out naturally. Have all wintered-over queens' wings clipped. When the swarm is in the air, cage the clipped queen and go through the hive, cutting off all queen-cells. Lay the caged queen at the entrance, and two or three of the best cells around the cage containing the queen. When the swarm returns, place an open-mouthed box over the caged queen and cells, thus allowing the bees to cluster over and about them. Eventually the old queen is to be killed, and the first queen emerging from the cells at the door reigns in the hive for another year."

The question would be whether doorstep foundlings would be as good as lawful ones nursed and brought up in the genial warmth surrounding them in the old homestead. Even if a small bunch of bees stays there faithfully, would not the temperature inside the bunch get low on a cool rainy night? Then, what would there be to hinder the bees inside the hive, with mother and embryo sisters gone, starting more queen-cells from the brood remaining in the hive, which, much of it, would be of right age to change to queens?

GENERAL CORRESPONDENCE

SOME REMINISCENCES OF A LIFE AS A BEEKEEPER AND SUPPLY-DEALER

BY WALTER S. POUDER

In my boyhood days, while with my parents on a fruit-farm at the edge of Cincinnati, I was much given to nature studies. The honeybee appealed to me as the most fascinating study in all the world, and it became my irresistible hobby, much against advice from those who were near to me. I secured all the literature available at that time, had valuable instructions from the late Charles F. Muth, kept my little apiary attractive with the lawn-mower and by building rustic chairs under the shade-trees, and then I had but one goal in view—I longed for at least one hundred colonies. I even thought that if I could secure the larger apiary I would be so contented that I would never ask for anything further.

I reached the goal; but while I secured much pleasure in reaching it I still found other wishes developing. I now began to wish that I could rear queen bees and advertise them in the bee journals. I had secured a crop of honey so large, filling tanks and barrels, that my father had some fears that the honey-house would yield to the weight. My honey-house was the upper floor of our shop, strongly built; but I remember his placing braces under the floor. My father found a demand for every pound of honey that I produced; and as I was determined to say that I was never out of honey I had occasion to purchase several barrels of it from New York and from Michigan, honey in those days being shipped in barrels and kegs instead of tin cans. This proved profitable, and here is a hint for beekeepers of today.

My entire apiary was devoted exclusively to producing extracted honey, using two-story Langstroth hives with ten Langstroth frames to each story, and a queen-excluding honey-board. This controlled the swarming problems; for at the beginning of the flow I would place the queen and two or three frames of brood in the lower story, filling the story with empty frames, and placing the rest of the brood in the upper story over the excluder. I often found it necessary to build many colonies three stories high.

It had been one of my pleasures to provide an ample supply of combs, all built from full sheets and mostly wired. At the beginning I had quite a few crooked combs, and a few that had large patches of drone comb. I gradually disposed of them by cutting out drone comb and cutting up some of my best combs with which to patch or replace the drone comb. I also managed to have all of my combs built to the bottom-bars of frames. To accomplish this I cut off the lower edge and replaced with a strip of comb to fit, and returned such combs always in the upper story.

I also learned to secure absolutely perfect combs without wiring. The idea would be quite practical today; but it seems that the time is not ripe for it. I would use full sheets of medium-brood foundation, cutting off half an inch from the end of each sheet. The object is, not to allow the sheet to touch the end-bars till it can have time to hang plumb. These frames are now to be inserted in brood-chambers, a few at a time, and always between combs of brood so that an equal force of bees will work on both sides of the frame at the same time. After one season in the brood-chamber they can safely be used in upper stories for extracting.

My experience in producing comb honey was not entirely satisfactory; at least I realized that I could secure more dollars and cents on the plan of extracting. In those days a section about four by five, used without separators, was quite popular, and I am not sure that it was not a mistake to discard it, for the smaller section with separators and small clusters does not bring as good results. We know that anything that divides the cluster is against comb-building. For those who ship comb honey, separators seem to be a necessity.

I produced one lot of strictly fancy comb honey, but I had my sections, supers, and separators made to order, using a section open top and bottom, and also open at corners—a sort of compromise between the plain and the standard section, and it could be used with or without separators. This was back in the '80's, and the sections were illustrated and described in GLEANINGS. The article brought me so many inquiries that I began to think I had the world by the tail; but my hold soon relaxed, for I

was not prepared to offer the goods. I used separators made of coarse wire cloth, and sections were clamped with thumb-screws.

In using some of this honey in an exhibit I recall one man remarking that bees had never seen that honey! I tried to explain that machine honey was out of the question; but as he walked away he muttered, "Well, I don't know. I have just found out that I have been eating manufactured eggs all winter."

Speaking about producing comb honey, I think now that if I were so fortunate as to be back in the business I would produce both extracted and chunk honey. There is an increased demand for chunk honey, and it enables the producer to secure the price of comb honey for a whole lot of his extracted honey. I think I would produce some comb honey in shallow extracting-frames and cut it out as fast as I secured orders. One must not prepare a lot ahead, for it is not desirable to allow granulation. I would use a six-pound pail with three pounds of comb and three pounds of extracted. In fact, when I did have goods to sell I used this method of putting up honey, and found a rapidly increasing demand. The method came to me by accident in taking care of comb honey that arrived here in broken condition.

Speaking about establishing myself back in the '80's as a queen-breeder, the more I thought of it the more I became enthused, for I felt that my surroundings were favorable, and I began to dream of pleased customers and taking armloads of cages to the postoffice! I also realized that much expense would be attached in requeening my yard, and that much material would be required for mating-boxes. I would not consider anything but the highest standards in every detail. I formulated my plans, and began that winter in making all arrangements, completing my library, making mating-boxes, etc. About one year was consumed in requeening my yard to the standard that I required.

My mating-boxes were my own idea, and I still think well of them in spite of strides in improvements. I ordered ten-frame hive-bodies with tops and bottoms and grooves cut in ends for three thin division-boards which made four compartments with an entrance at each end and one at each side. The point was that they would co-operate on heat, and that by using the standard frame I could unite at the close of the season with no loss of bees or brood. A detachable number-disc hung on each compartment, and one on each hive gave me opportunities for an accurate book-record of every queen in my yard.

In those days much was said about controlling the mating of queens, and for a time I thought I had at least partly solved the problem. We knew that queens usually take their flight in the early afternoon, at such times as young bees are taking play-spells. I knew that by feeding my nuclei a small amount of syrup in the forenoon the queen would take her flight, and at such times very few drones were in the air; but by feeding my best colonies I could also force the drones to fly at the same time. I still think that something might yet be accomplished by further experimenting in this line.

My hand-hold slipped again! In queen-rearing I met with quite a few failures, and found it necessary to refer to my books frequently. With more experience I was more successful; and yet it seems to me that I followed old plans, and I do not know to this day why some ideas were failures and again successful after pursuing the same methods. Perhaps my enthusiasm had a bad effect at the beginning. Our text-books are fine, but there is one thing that has always given me much concern. It is the ideas expressed about fertile workers and drone-laying queens.

I cannot induce myself to believe that ever a seed in vegetation germinated without pollenization or that ever an egg laid by an insect developed life without fertilization. I should like to see modern science go deeper on this subject. Modern science seems to go deeper on subjects where more value is at stake, such as mining, medicine, etc., but I find what I think is a parallel case on my subject pertaining to the eel. Aristotle taught that the eel was without sex, and that they were produced spontaneously from the earth, and even Pliny agreed with him. It was not till 1877 that an Italian naturalist identified a female eel, and showed that they lay millions of eggs, always in brackish waters. As a matter of commerce the bee is far ahead of the eel, although eels are considered a fine article of food by some people.

Excuse me, for they remind me of a snake; but I presume it is all a matter of taste. I learn that snails are considered a delicate dish in Paris! This reminds me of a story about a foreigner visiting this country. His friend wished to secure for him a fine café dinner, and they sat down to celery and bouillon; and then after clearing the table the waiter brought in a piping-hot lobster with the accessories. The foreigner pushed back his chair and remark-



Heartsease, *Polygonum persicaria*. Photo by J. M. Buchanan, Franklin, Tenn.



Boneset, *Eupatorium perfoliatum*. Photo by J. M. Buchanan, Franklin, Tenn.

ed, "I ate your grass, I drank your slop, but I'll be dommed if I ate you bug!" I find that I am getting off my subject.

When I had secured queens ready for the market I was confronted with the problem of advertising—a subject which I have since found very interesting and deep. I tried small spaces in bee journals, and expected a deluge of orders; but in this I was again disappointed. I was unknown; and if it had not been for the fact that I secured some advertising space in exchange for bee notes in a farm paper I would have come out of the little end of the horn. At a time when I was a little discouraged, the late Charles F. Muth visited at our home. He looked over my outfit; and before he left he said, "Walter, for the present I can use all the queen bees that you can produce." His kind and gratifying words can never be forgotten.

Well, I found myself so fascinated with the bee business that I had promised myself that, if I were rewarded with a first-class apiary, and established in the queen-rearing business, I would never ask for anything further, especially if these things were gained by the sweat of my own brow. Now, things were different again. I began to have a longing to go into the supply business.

I spent one winter with the A. I. Root Co., and the more I learned about it the more it seemed to fascinate me; and the very odor of pine lumber and beeswax seemingly intoxicated me. I had met many beekeepers, and I thought them as a class the best people on earth. I have never changed my mind on this point. My opportunities at home were good, but I was worried about getting in the supply business. I had seen good men fail after starting with considerable means while others prospered; but I felt that I could succeed if I only had the opportunities, but there seemed to be no openings. However, the darkest hour is just before day, and I had even looked over the map deciding that, if I had my choice, I would locate in Indianapolis. I had occasion to visit friends in Indianapolis, and just naturally hunted up the local bee-supply dealer, Mr. Frank L. Dougherty.

After cordially shaking hands in the attitude of the bee fraternity he confided to me that he had been promoted to more extensive interests, and that his supply business was for sale. This brought me to a fever again, and I learned that another man was negotiating for the business—a man with much more means than I could



Goldenrod, *Solidago.* Photo by J. M. Buchanan, Franklin, Tnnn.



Aster, *Aster multiflorus.* Photo by J. M. Buchanan, Franklin, Tenn.

control. I returned with a heavy heart, exchanged a few letters with Mr. Dougherty, resulting in his giving me the preference—a kindness that will be lasting in my memory. I conducted it for twenty-six years with some hardships, some hard work, but, after all, a quarter of a century of real pleasure. And I still think that the beekeepers are the best people on earth.

Indianapolis, Ind.

THE FALL FLOW

BY J. M. BUCHANAN

The late summer and fall flow is an important factor in the next season's honey crop; for strong colonies at the beginning of the spring flow are dependent on successful wintering, which, to a great extent, is insured by having the hives full of good stores and young bees at the beginning of cold weather.

If there is no fall flow to induce late brood-rearing, the colony goes into winter with old bees which have not sufficient vitality to survive the cold and confinement of winter; and if stimulative feeding ever pays, it is at such a time as this, for too much importance can hardly be placed on the matter of late rearing of brood.

There is quite a variety of plants throughout the central states which furnish nectar and pollen during the late summer and autumn, and a short description of some of the most important is here given.

Polygonum persicaria, heartsease, smartweed; a prolific nectar-bearer in low lands and moist soils. The honey is of good flavor, and light amber in color; blooms in August and September.

Eupatorium perfoliatum, boneset. On the high lands of the central states this plant furnishes a good crop of surplus honey of fair quality, light amber in color, and of rather high flavor. It grows 2 to 4 feet high and has white flowers in broad flat heads, in August.

Solidago, goldenrod. There are more than 75 species of goldenrod found in the United States. However, not all of these are of value as honey-plants. There are several good ones which are widely distributed, and which produce a fine quality of honey, mostly of a golden color. They bloom during September and October. Two species are shown in the illustration.



Crab spider caught in the act of killing a bee.

Aster, aster. Several species or varieties are of value as honey-plants, some producing much better honey than others. Aster honey is very quick to granulate, and is rather strong in flavor. It is not usually considered very good for winter stores, especially in the North, where the bees are confined for a long period. There is generally a sour smell about the apiary when the bees are at work on aster. The bloom begins in September, and continues until after frost.

Other late-flowering honey-plants which might be mentioned are buckwheat; alsike and sweet clover; cotton, cowpeas, wild sunflowers. The common ragweed, *Ambrosia artemisaefolia,* is one of the most prolific pollen-bearing plants among the late bloomers, although it furnishes no nectar.

Franklin, Tenn.

THE TRAGIC SIDE OF BEE LIFE

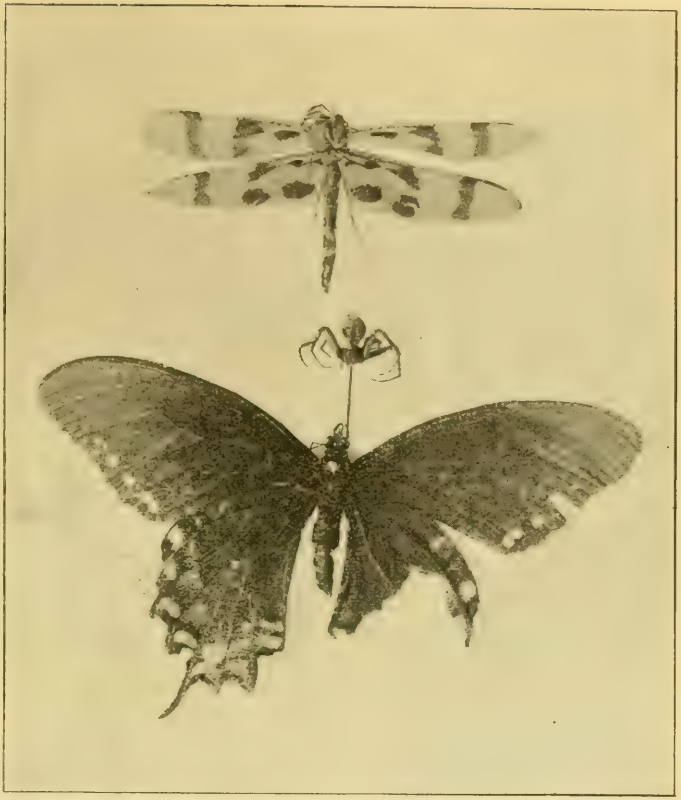
BY WILLIAM BEUCUS

When we turn to the daily life of the bee and see how its fructifying mission is beneficent, how it is called to the delicate fragrant blooms which crown the vegetable kingdom, and which are a synonym of loveliness, we are quite overcome, and exclaim at the transcendent beauty of it all; but when we find lurking at the portal of the lily of the field a monster whose only mission is to seize and destroy the bee, to hold it in a vise-like grip while it calmly punctures the living tissues of its victim, the face of nature loses its charm, and its ugliness is unveiled.

The labor of the bee is kindly and constructive; and yet it must, at every trip, face the pirates of the earth and the air whose labor is cruel and destructive. One of these monsters is shown in the photo. It is a white spider which lurks on white blossoms. Its duplicate in form, though colored yellow, lurks on yellow blossoms. This spider spins no web; but with arms outspread, it patiently awaits the coming of its only victim, the honeybee. It does not spring, but waits until the head of the bee is in exactly the right position between the outstretched arms, and then, with a swift movement, it seizes the bee in a powerful embrace and bites into the neck from the upper side, as shown. The bee has no chance to defend itself, and falls an easy

victim. The particular spider pictured was caught in the corolla of the wild white lily. It was rudely driven out, clinging tenaciously to its prey, on to a green leaf, carried into the house, the leaf pinned to a box, and the photo taken.

Several years ago one of these spiders was compelled to release reluctantly its victim; and it was then carried to a populous colony and dropped at the entrance among the bees. They seemed to recognize their enemy, and drew away. After considerable irritation, one bee, more valiant or indiscreet than the rest, attacked the spider viciously. Instead of showing fear, the spider seized the bee in a strong grip and bit it on the under side of the thorax. The bee was thus in a position where it could use its sting. But it wilted as though paralyzed by a poison. This observation may prove interesting to those entomologists who assert that the spider secretes no poison. I then caught a worker, and, holding the spider securely, held the point of the bee's abdomen on to the spider that the sting might be made effective in retaliation. But the sting seemed to be unable to penetrate the skin of the spider, although many efforts were made. It seems, then, that, though the spider takes the precaution to seize the bee in the safest way, it would not be in danger, even if the bee were seized wrongly.



Spiders which kill honeybees. 1, black swallow-tail butterfly (*Papilio asterias*), killed by crab-spider *Misumena vatia*, 2. 3, dragonfly (*Celithemis eponina*), captured by *M. vatia*, 4. Photographed by John H. Lovell.

To gratify my own feelings this spider was despatched, as was also the one shown in the photograph.

Cadott, Wis.

[Chas. Hecht, in the Oct. 15th issue for 1907, describes this same spider, and an illustration is given showing the spider and its victim on a dandelion blossom. Mr. Lovell, in his article which follows, shows a spider which is, no doubt, the same one, killing butterflies.—ED.]

FLOWER SPIDERS WHICH KILL HONEYBEES

BY JOHN H. LOVELL

In gathering nectar from flowers a honeybee would seem to be in no danger; yet often it meets with a tragic end. Here lying on the flat top of the flower-cluster of the hobble-bush is a dead bee. Lift it up and you may discover that the head is firmly grasped by the mandibles of a white spider, which, rather than release its prey, permits itself to be dragged from its hiding-place. Except for a red stripe on each side of the abdomen, it is wholly white, so that it cannot be easily distinguished from the small flowers among which it lives.

It is one of the crab-spiders (*Thomisidae*), so called because, like a crab, they walk sidewise or backward more easily than



Dr. Neville's summer and winter repository for bees.

forward. These spiders lurk among flowers, usually in dense clusters of small flowers like the meadow-sweet, the sumac, the elderberry, and viburnums, and pounce upon the unsuspecting insect-visitors. The two commonest species are *Misumena vatia* (shown in the photograph), and *M. aleataria.* They not only catch bees and flies, but also wasps and large butterflies and dragonflies, as the illustration shows. The poison is very virulent, or otherwise they would be carried away by such strong-winged insects. These spiders are common, and kill a good many honeybees.

On the 16th of July I noticed a bumblebee gathering pollen on a flower of the wild rose (*Rosa lucida*). My attention was for a moment diverted, but was again quickly recalled by the loud buzzing of the bee. A white spider had leaped upon its back and grasped it with its mandibles just behind the head. At first the bumblebee struggled violently, but gradually its efforts became more feeble and soon ceased. The spider now dragged it over the edge of the flower to the leaves beneath, there to dine at its leisure.

Waldoboro, Maine.

A COMBINED SUMMER AND WINTER SHED FOR CITY USE

BY DR. R. NEVILLE

The illustration shows my bee-house which I use both summer and winter here in town. In the summer the hives are 28 inches above the floor where they are placed during the winter. This means that, during the summer time, the entrances are at least four feet from the ground so that the bees are usually above the head by the time they are out of my lot.

The lower part of the shed is of concrete blocks, resting on a foundation wall four inches high, through which openings are left for the winter entrances. The shed is 40 feet long and 4 feet wide outside measurements; 32 inches in the clear on the inside.

After the hives are placed down on the floor inside for winter, we secure boxes that have been used for shipping panes of glass; fill the three-inch space inside with dry straw, and place it over the top for a covering—finally putting on the boards used for

the summer stands. In this way we can winter strong three-frame nuclei without losing one, making sure, of course, that the combs contain plenty of stores.

A strip of rubberoid roofing-paper covers up the openings for the fronts of the hives in the summer time.

After 35 years of experience we have found this shed the most convenient arrangement of anything we have ever tried for city beekeeping.

Walkerton, Ind.

[Dr. Neville is an old soldier who served three years in the Civil War, and who marched with Sherman to the sea. His bees are kept mainly for pleasure, but he produces some 500 to 1000 pounds of honey a season from his bees on his back lot.—Ed.]

MAKING SURE OF SUPERSEDURE

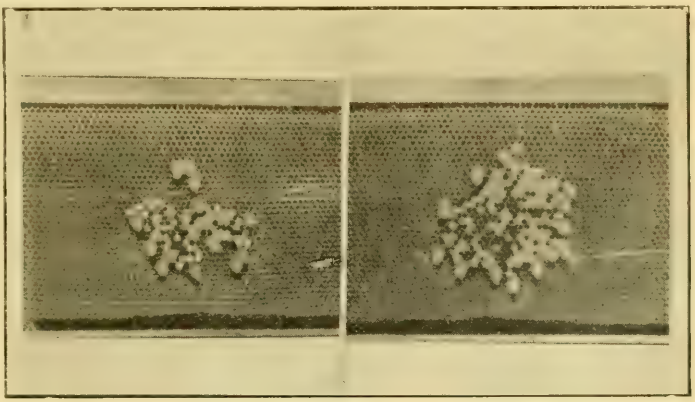
BY F. A. HARRISON

The photograph shows both sides of a frame of brood which, according to my count, had twenty-eight queen-cells. This comb belongs to a new colony which swarmed May 17, 1915, and was placed in a new hive with full sheets of foundation. This is absolutely all the brood in this hive. Can you tell me why so many queen-cells are built by a new swarm?

The hospital at this station has eight colonies which are kept inside the walls of this institution. I have thought seriously of sending a photo to compete for a prize showing how bees can be kept when closely surrounded by men at work. However, if our apiary increases as much next year as it has this I am afraid we shall have to move outside.

Fort Leavenworth, Kan.

[This was a rather unusual occurrence. We assume that this was a prime swarm—that is, the first swarm—therefore that it contained the old queen. Probably this old queen began to fail soon after the swarm was hived. The fact that she had only a small patch of brood on each side of one comb a month afterward is pretty conclusive evidence that she had all but stopped laying. The bees decided to supersede her, and then "got busy" with what little brood they had.—Ed.]



Twenty-eight queen-cells built by the bees of a new swarm.

A PLANT THAT FORETELLS THE ALFALFA HONEY CROP

BY GEO. M. HUNTINGTON

I am sending two snapshots of wild buckwheat, *Eriogonum fasciculatum,* a very important honey-plant to the beekeepers of this valley wherever it is in the vicinity of their apiaries. It comes into bloom just before alfalfa, and is a good indicator of crop prospects for the season. Coming just before alfalfa it prepares the way for good results from the alfalfa. It starts the bees into the supers and provides the wax scales for comb-building. If there is a good flow from the wild buckwheat the condition is sure to be such that alfalfa will also produce well.

Swarming is about over at the height of its bloom, and the earlier swarms have made progress during the buckwheat flow to where they will be storing surplus when alfalfa starts. Like the cultivation of buckwheat it is the best in the early part of the day, and in cool weather (not cold) it gives the best results. Two or three hot days at



Wild buckwheat is a forerunner of alfalfa in parts of California.

the finish will wind it up, and is just what the alfalfa needs to come on with a rush. The season of 1914 was like this, and the wax-workers were not "laid off" between the flows.

In 1915 the wild-buckwheat flow was very short, as was also the first flow of alfalfa.

Wild-buckwheat honey is dark in color, but not as dark as its cultivated cousin. The flavor is also much milder.

Bishop, Cal.

GETTING READY FOR COLD WEATHER

BY D. C. ANDERSON

I have wintered bees for the last three winters as follows: I built a platform 4 ft. 6 in. by 9 ft., about eight inches from the ground. On this I placed ten hives, four fronting east, four west, and two south, and closed the entrances to about six inches in length by ⅜ in depth. On the fronts of the hives over the alighting-board I put a 1 x 6-inch board flatwise.

The side-boards are two boards nailed with cleats one inch from the end, set on the outer edge of the board over the alighting-boards. One-inch boards the right length are tacked on the ends against the cleats, leaving the nailheads out far enough so they can be drawn out when you wish to take the case down.

The side-boards should be a few inches narrower at the north end to carry the water off. I pack with leaves, having plenty of them, tamping them tightly all about the hives. Sometimes I fill the supers with leaves, and sometimes put the covers on and pack the case full of leaves; then cover with boards and roofing-felt. As the board over the alighting-boards projects somewhat I nail a narrow board on the front that keeps the storms from driving in the hives.

My bees have always wintered well in this case, never losing any excepting from starvation or loss of queen. Bees get a flight every month in the winter here; but we also have zero weather. It seldom lasts more than a few days.

I have also a tenement hive six feet long, spaced for four colonies with 12 to 14 Hoffman frames. The top is spaced for ten-frame supers. The divisions are of inch lumber, with a 5 x 5-inch hole in the center, over which is tacked excluder zinc on each side, so the queens cannot reach each other. The entrances are north, south, east, and west.

For wintering I tack newspaper on the sides and ends; nail a wide inch board over the paper, fill the supers with leaves, and finally cover to keep the storms out.

I have had this hive four years, and for three years it was the best honey-producer in my yard; but this last summer my bees got the swarming fever, and this hive will not give much surplus. The first winter I tried to winter all four colonies; but the colony facing north disappeared. I do not know that it would have occurred again, but I never tried to winter any bees in that compartment afterward.

Boicourt, Kan.

SELF-TRIPPING OF ALFALFA

BY J. H. LOVELL

Alfalfa sometimes sets seed freely, even in the absence of insects suitable for tripping the flowers. The Bureau of Plant Industry has recently shown (1914) that the flowers often trip automatically. Alfalfa has explosive flowers—that is, when the keel is depressed the stamens and pistil fly forcibly upward with a snapping sound, and a little cloud of pollen is thrown into the air or against an insect. At Chinook, Montana, 33 out of 57 flowers marked on one plant became self-tripped and set 21 pods. On a second plant 36 flowers out of 64 tripped automatically and produced 16 pods. Self-tripping is influenced by temperature, humidity, and bright sunshine. A single alfalfa-plant was screened from insects for ten days or longer until it was in full bloom. The screen was then removed for 15 minutes on a very warm day. The flowers quickly began exploding with a snapping sound at times three or four being heard simultaneously. It was estimated that more than half the flowers were self-tripped before the screen was replaced. In the West, automatic self-tripping probably results in the production of as many pods as insect pollination. This observation is important, since it explains the production of a large crop of seed in the absence of insects.



The stink-horn fungus (*Phallus impudicus*) sometimes grows up in the apiary in the fall.

THE ODOR OF GOLDENROD NECTAR.

While the bees are bringing in nectar from the goldenrod, the whole apiary is filled with a disagreeable sour smell which, on a calm evening, may sometimes be noticed at a distance of a hundred feet. The odor of goldenrod nectar has been likened to that of decaying carrion, but this is a mistake. When such an odor is present it is usually caused by one or more stink-horn fungi. One autumn I noticed in my bee-yard a strong carrion-like odor, and careful search soon revealed several of these fungi growing near an apple-tree. At least a dozen flies were busily feeding on the semi-liquid mass. Where there is decaying organic matter the stink-horn fungus frequently spring up in the fall. They exhale a fetid scent, and often mislead the beekeeper into the belief that this odor comes from the hives. The stem is hollow, and the cap-like top deliquesces into a sticky, syrupy mass which is very attractive to carrion-flies. They devour great numbers of the spores, which produce a kind of diarrhea, and pass through them unharm-



The Tri-state Field Meet at Hamilton, Ill., Sept. 7 and 8.

ed. Certain fungi thus, like flowers, make use of insects to distribute their spores. The illustration shows two specimens of this fungus (*Phallus impudicus*).

Waldoboro, Maine.

[Every fall we receive a large number of letters from beginners who describe a peculiar smell when the hives are opened. Is it not possible that the odor so frequently described as "sour" *does* come from the raw nectar of goldenrod, and that the odor resembling decaying animal matter is from the fungus described by our correspondent?—ED.]

THE TRI-STATE FIELD MEET AT HAMILTON, ILL., SEPT. 7 AND 8

BY E. R. ROOT

This was one of the most enthusiastic meets I have ever attended. The day and place of meeting, about two miles out from Hamilton, were ideal. The bees were working heavily in the fields at the time; and, all together, the conditions could not have been better. Our hosts, the Dadants, and that means quite a family of them, including sons and sons-in-law and daughters and daughters-in-law, left nothing undone to make the occasion a success; and those who had the privilege of attending felt that they were most royally entertained.

The picture shows the original Dadant homestead where the late Charles Dadant and his son, Camille P. Dadant, began their beekeeping careers in the early '60's. At the right is the bee-yard consisting of those immense Dadant colonies in Dadant hives, Quinby size. Some of the old original hives were still in use. At the left is a portion of the Dadant foundation-factory and work-shop, where tons and tons of the finest product are turned out. It is unnecessary for us to state that the Dadant foundation is known the world over. Every one was given an opportunity to go through the plant in groups of twenty-five and fifty at a time, piloted by one of the Dadants.

In this connection I cannot forbear making the observation that the firm of C. P. Dadant & Sons is organized very much like the A. I. Root Co. They are both strictly family affairs, made up of sons and daughters and sons-in-law and daughters-in-law. Each member of the concern is in charge of a department of his own. Mr. C. P. Dadant seems to be the presiding genius, and, as he said to us, he is "taking life easy," and letting the boys run the business. In that respect he is following the example of A. I. Root. Mr. M. G. Dadant and his oldest sister have direct charge of the *American Bee Journal*, which the Dadants purchased a few years ago of Mr. G. W. York. Messrs. L. C. and Henry Dadant and a son-in-law are connected directly with the manufacturing end of the business, and that takes in the various out-yards and the production of honey as a business.

We hope to present the pictures of the members of this interesting family later to our readers.

Dr. E. F. Phillips and myself arrived in the forenoon. Already groups of beekeepers were in the yard. In one case Mr. L. C. Dadant had opened up one colony that had a plain case of dead *drone* brood—the very thing that was described in GLEANINGS for Sept. 1, page 695.

The beekeepers assembled here and there, opened up some of those big colonies, and discussed bees and methods of manipulation. At the noon hour the whole crowd, something over one hundred, sat down to a most bountiful repast. This part of the program was a great success, and was so pronounced by every one who had a chance to sample the Dadant hospitality.

After dinner the beekeepers were called together in convention by Frank C. Pellett, at which time we listened to some informal talks by Dr. E. F. Phillips; Mr. C. P. Dadant; Mr. A. L. Kildow, of Illinois, state bee inspector, and Mr. Frank Coverdale, the sweet-clover expert, of Iowa, well known all over the United States.

Mr. Coverdale, of course, was given the subject of sweet clover. He is not only an extensive beekeeper, but a successful farmer. He has done, perhaps, more than any other man in the United States to demonstrate the value of sweet clover, not only as a forage plant for bees, but for cattle and hogs. He grows great quantities of the legume, and his success has been so great that it has attracted the attention of state experiment stations and the United States Department of Agriculture.

Mr. Coverdale had just sold a lot of cattle that he had raised, and these cattle brought $1.00 per 100 lbs. above the general market. He explained that he secured this extra price because the cattle were so sleek. Sweet clover, he said, is not only a fine forage for bees and cattle, but it keeps the animals in splendid condition. It has the same feeding value as alfalfa, and the milk and butter from it are just as good.

Some one present asked him about getting cattle and hogs started on it. He recommended letting them loose when the plants are young and tender. For planting he advised putting in with early oats. The sweet-clover roots penetrate the soil deeply, and after two years die, allowing the moisture from beneath to come to the surface.

Asked as to the time when to cut it, he recommended that it be allowed to grow till it is 22 inches tall. The mower should be set so that it will not cut close to the ground—high enough so that some of the leaves will be left. Otherwise the plants will die.

Later in the afternoon the crowd was conducted by the Dadants to the big dam that furnishes 75,000 electrical horse power. The dam and the power plant are well worth seeing.

That evening we assembled—that is, those of us who were left—on the veranda of the

beautiful home of C. P. Dadant, which overlooks the Mississippi, the lake, and the great dam of the Keokuk Power Co. The time was taken up with impromptu speeches by Dr. E. F. Phillips, N. E. France, C. P. Dadant, and E. J. Baxter. It seemed appropriate to speak of the life and labors of men who have distinguished themselves in the beekeeping world—especially those who have passed away. Mr. F. C. Pellett, the presiding officer, called on Mr. Dadant to give some reminiscences of his father. He very modestly declined, saying he did not consider it either proper or appropriate to eulogize his own father, the founder of the firm of Dadant & Sons. Mr. Pellett then called on Dr. Phillips to respond to a toast, "Dr. Miller." There is probably no greater admirer of the Marengo beekeeper than the representative from Washington. He spoke of the delightful visit he had had at Marengo, of Dr. Miller as a man, as a beekeeper, of his modesty, of his methods of comb-honey production, of swarm control. Mr. Pellett then called on your humble servant to speak of the life and work of the late W. Z. Hutchinson and the Rev. L. L. Langstroth. I felt that I was hardly big enough for the task, but I responded as best I could. But in closing I could not forbear referring to the sterling qualities of the late Charles Dadant; and later the chairman succeeded in drawing from Mr. C. P. Dadant, his son, a few further remarks. I was then followed by N. E. France, who spoke of his love for W. Z. Hutchinson, and of one man, Mr. Adam Grimm, who left his impression all over the state of Wisconsin, for Mr. Grimm actually established a bank with the money he earned by keeping bees. Mr. Baxter then gave some further reminiscences of Mr. Charles Dadant. The talks were followed by some music by Miss Dadant, who was encored again and again.



Staghorn sumac. *Rhus typhina* L. Photographed July 28, 1915, at Waldoboro, Maine, by John H. Lovell. Pistillate flower-clusters; in cluster on right the flowers are in bloom and are green in color; the cluster on left representing a later stage after the blooming period has closed, has turned crimson.

THE INSPECTOR'S MEETING NEXT DAY.

Dr. Pammel, Botanist at the Iowa Agricultural College, read a paper on the subject of honey-plants and the importance of bees to the fruit-grower. A large number of specimens of plants, including heartsease, asters, Spanish needle, ironweed, etc., were brought in for his identification. This part of the program was interesting, as many local beekeepers were unable to identify many of the plants. There were several species of heartsease as well as of knotweed and smartweed. All of these Dr. Pammel named. Heartsease and Spanish needle were the plants that were, of course, furnishing so much

honey this year in the Mississippi Valley. He recommended that every beekeeper be familiar with the plants in his own locality that furnish honey. He called attention to the very intimate relation between bees and plant-life, and stated that every fruit-grower should keep some bees as a side line.

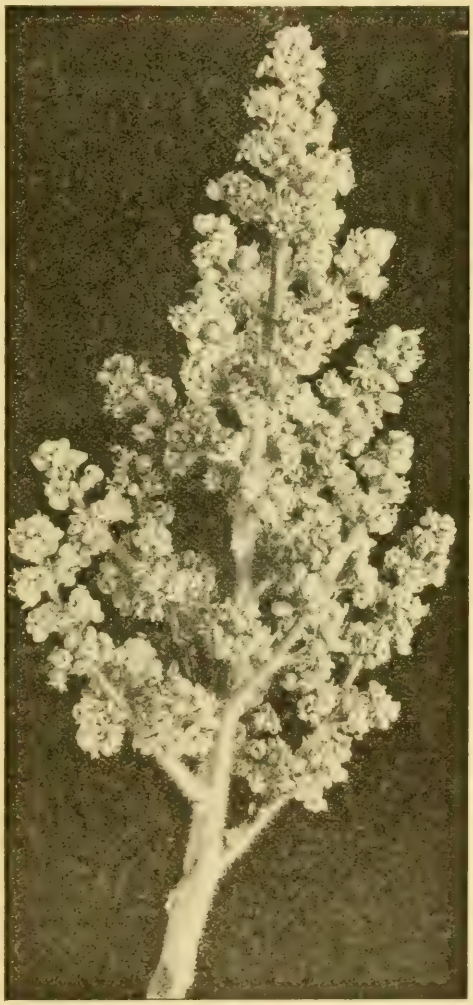
Dr. Pammel is doing some special work at the Agricultural College in classifying and identifying the principal honey-plants of the United States. If the result of this work comes out in bulletin form we are sure it will be of great value.

In the afternoon Dr. Phillips gave an address on general bee-inspection work. When he first came into the government work, only twelve states had bee-inspection laws. Now there are thirty states out of forty-eight that have some form of bee-inspection work. Most of the southern states have no laws, largely because bee diseases have not made any progress in the South. This is not because foul brood can not make rapid headway there, but rather because there are but few or no interstate shipments of bees from infected territory in the southern states. But the time will come when these states will need protection.

What is needed in the South, he said, is some one to teach modern methods of keeping bees. In this connection he claimed that it is the duty of a bee-inspector not only to treat bee-diseases but to give instruction concerning them. This part of the work is very important. Where bee-inspection laws have been properly enforced, there has been a marked decrease in the amount of bee-disease.

A bee-inspector should teach the importance of two things—first, plenty of bees in time for the harvest, and that means good wintering and good springing; second, keeping the bees together, and that means not to let them waste their substance in rictous living—or, more exactly, swarming. There is great need of general extension work in the southeastern states where there are more bees per square mile than anywhere else in the United States.

A paper from Mr. J. E. Crane, of Middlebury, Vt., who was absent, was read. He explained that the work of an inspector is not always pleasant. On the other hand he makes many pleasant acquaintances. Not knowing what Dr. Phillips had said, he went on to state that the inspector should instruct as well as inspect. He spoke of the difficulties of looking through hives when the frames were all glued together, or, worse, when the combs are built on no frames at all. He thought the states should compel the use of modern movable-frame hives. He spoke of the difference between American and European foul brood; of the difference in treatment. The European type seems to move in the air. The American disease works slowly, but the European spreads with great rapidity. Robbers carrying diseased honey is not the only way that foul brood may be carried. Bees in their ordinary flights often make mistakes and get into other hives. In other words, drifting is a very common means of spreading disease. The ravages of European foul brood can be greatly mitigated by introducing a good strain of Italians, and keeping all colonies strong.



Staghorn sumac. *Rhus typhina* L. Photographed July 28, 1915, at Waldoboro, Maine, by John H. Lovell. Staminate flower-cluster.

Following this paper there was considerable discussion on the peculiarities of European foul brood. Mr. L. C. Dadant told how European foul brood in several apiaries had seemingly been carried by the queen. Several of the inspectors present, including Inspector A. L. Kildow of Illinois and his deputy, Inspector N. E. France of Wisconsin, and Inspector F. C. Pellett, had observed that European foul brood had been carried through the queen.

I put the question squarely to Dr. Phillips, who, up to this point, had not volunteered an opinion. He said frankly, "I do not know." In some private conversation with him afterward he thought there might be a chance for a mistake. While he did not deny that it might be so carried, he thought we should do some more work covering a longer period before coming to the definite conclusion that queens can transmit European foul brood.

Mr. France, in one of his talks, went on to state that it had been claimed that American foul brood could be carried through foundation. He had always argued that it could not be so transmitted; but to satisfy himself he had some comb foundation made out of the rottenest combs he had even seen. This was placed in 62 different colonies, all of them healthy, but not one of them developed disease. Practically all of the inspectors agreed that American foul brood is not carried that way.

A THREE-FRAME NUCLEUS, AND WHAT IS POSSIBLE TO BE DONE WITH IT IN A SINGLE SEASON

BY R. J. T. MUCKLE

[On page 414, May 15, there is a picture of the "bonanza colony," and a brief mention of what was done with a three-frame nucleus and queen. On page 474 I called attention to this wonderful exploit, and suggested that there was a mistake in the date, as the letter sent us was evidently written carelessly and in haste. I am glad to tell you, however, there was no mistake, and that our good friend Muckle did exactly what he describes during *1914* with a three-frame nucleus received May 25. I asked him to give us full particulars of this wonderful increase, and he has kindly written it out in full as below.—A. I. R.]

Although a very busy man from 4 A. M. until dark I shall still try to answer your questions.

The whole thing was to me an experiment, or, rather, a continuation of an effort to prove Alexander wrong except in the plurality of queens. I succeeded only in proving him right, which was really what I *was* after.

From the afternoon of May 26, 1914, right through the season, I fed a gill of syrup (3 water, 1 sugar), not only to the original colony but to each swarm (artificial) right through the season up to October 20, when I gave those not sold 10 lbs. of sugar by measure to 4 by measure of water (2½ sugar to 1 water by measure). The queens being all young, and from the grand one accompanying the nucleus, simply filled their hives to overflow with young, and I was afraid the syrup would fail them before the spring of 1915, they having nothing else save the pollen in the two outer combs.

They came through in extra strong shape, and they withstood the worst spring and early summer I've seen in my life. So much for helping them and giving syrup for winter.

On May 26, 1914, I received a three-frame nucleus (value $3.75) and a three-banded Italian queen ($1.00), marked "a good queen." One frame was solid capped worker brood, and the other two frames were fully half the same—not a drone-cell in the lot. The frames were swarming with workers and not over twenty drones; and the queen, a lively medium-sized one, was laying in 30 hours from arrival. She laid 37 combs full, twenty of which her gang drew out of full sheets of light foundation.

We certainly had an abnormal flow from dandelion. I never saw so many in my life before (and it was the same this year); wild fruits on a par, and wild mustard (in this country a good yielder), several hundred acres within two miles; also 20,000 acres of swamp land beginning one mile east.

On June 5 I put a queen and one frame of hatching brood in a new body, filling up with full sheets of foundation on wired frames. On this I placed a wire excluder, then a body full of drawn comb. Above this was a wire honey-board having two bee-escapes. Then having shaken two-thirds of the bees off the frames I placed the old body on top and the job was done.

Eight days later I cut out all but five queen-cells, four of which I put in queen-cages; and four days after I drew out a plug in the front end of the wire honey-board, putting on a five-inch-square alighting-board, and provided the top story (hatching-nest) with a hall door. My first queen mated; and when laying I moved to

a new stand with two frames of hatching brood, and bees clinging thereto. I then released a virgin, which was lost, and another, which was also lost (air full of dragon-flies); but the fourth mated, and it, too, formed a new colony. No. 5 was malformed, so I killed her.

On June 15 I switched again, this time by taking combs of brood out of the nest and putting it in the top story, filling their places after drawing those left in the nest to the center of the body with full sheets, repeating this on the 25th and again on July 4.

That's all there is to it; but whether you will understand from my way of writing is another thing. Could I talk instead of writing I could make myself understood easier.

Clandeboye, Man.

THE BEEMAN'S OPPORTUNITY

BY L. M. GRAVELY

Beekeepers as a rule do not realize what an opportunity they have by way of securing free advertising. If properly managed, one can even get pay for advertising his own business. The rank and file of the honey-consumers never understand the marvelous things of interest concerning the bee and its works. It is up to us to give them, through the medium of the newspapers, live, interesting sketches of the bee and honey industry. Anything unique, original, or interesting is acceptable. Of course, one must not give the article the appearance of advertising or it will "queer the game." It is not necessary to say that you have honey or bees to sell. If you have bees they will know that you have honey.

I produce a ton of honey. The word "ton" seems much bigger when applied to honey than does 2000 pounds. So does half a ton, or a quarter, for it seems much bigger to most people because they were familiar with it only in spoonful lots when given to cure a cold.

Then, again, the average person cannot get away from the belief that you are taking your life in your hands. Most beekeepers can amaze the public by the way they handle their bees. One of the most successful plans I ever tried in the way of advertising was the use of the accompanying illustration. More for the fun of it than anything else, I made this picture last summer, showing a real live swarm of bees on my head.



A hat that is truly alive.

Ringgold, Va.

A NEW ABSORBENT COVER

BY G. A. BARBISCH

My bees are wintered in the cemented cellar under the house. This cellar has good ventilation, the thermometer seldom varying more than four or five degrees all winter, no matter how cold it is outside. With the exception of one season I have had no loss whatever in this cellar. My bees are stacked up in tiers of four, but every spring I found that colonies in the lowest tier next to the floor had moldy combs and were always the weakest in bees.

Last season a certain bee-supply com-

pany sent me a sample of a new absorbent cover made from flax fiber, claiming these covers would absorb all moisture in the hive, and that no more moldy combs would be found. I at once ordered enough of these combs for all my hives. They were put on the hives two weeks before the bees went into the cellar. Here I might also mention that all our bees are covered in the fall with tar paper, just as soon as we can take off the extracting-super, and we think it pays well. Bees that are covered with tar paper can be kept out longer than if not covered. Then, too, if an unexpected snowstorm comes during the night, your bees are still dry and snug. Very often we have stormy weather in November, while in December it is nice, and bees still can have an occasional flight. These are the reasons why we cover our bees with tar paper.

But, to go back to my subject, seventy-five colonies went into winter quarters Dec. 10. I left off the regular covers and substituted these flax covers. They were confined just four months, and after examining in the spring I was gratified to see that, among the seventy-five colonies, not a single wet or moldy comb was found. All the colonies were alive, and all the hives were as clean and dry as they could be. After all those four months of confinement, about two quarts of dead bees were swept up in all.

This proves beyond a doubt that these flax-fiber covers are of great value where bees are wintered in the cellar, and especially where a cellar is damp and cold. They are also fine outside for spring protection providing one uses the metal-roof covers. If used with the excelsior cover they are of no value, as they are the same width as the hive. If a hard rain comes it strikes the edges of the cover and soaks the cover like a sponge. They cannot be left on all summer, as the bees glue them down so that they break when you want to take them off. As I said above, however, when one winters his bees in the cellar they are indispensable, and the cost is so low that it pays well to use them.

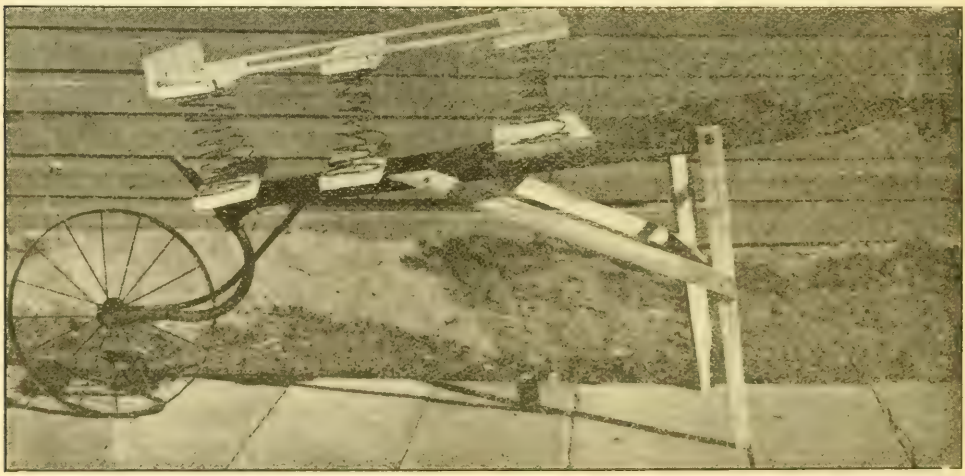
La Crescent, Minn.

A WHEEL HOE CONVERTED INTO A SPRING WHEELBARROW

BY F. J. LEE

The picture shows my spring wheelbarrow for taking bees in and out of the cellar. I used to hire a man to help me, and one of us had to go backward some thirty feet through the furnace-room to the bee-cellar. With the spring barrow I can take the bees out easier alone.

Every beekeeper has or should have a garden, and a wheel hoe or seeder to work it. Here is how to change the wheel hoe to a wheelbarrow. Turn it bottom side up; take off the hoe or rake; take off the handles; turn them over; bolt them on again. Take two sticks for legs, and two pieces of lath for braces. Two small bolts will fasten the legs to the handles, and four one-inch screws the braces. Now cut six pieces of board 18 inches long. Hunt up six old



A light spring wheelbarrow made from a wheel hoe—just right for carrying hives into the cellar.

springs, and put them between the boards and fasten them well with spacing-staples. Two pieces of lath on each side will hold the boards in place. Fasten the bottom boards to the handles with some hay-wire; put on a narrow piece for a dashboard, and the spring wheelbarrow is complete. I was less than half a day making it, and I can change it back to a wheel hoe in less than five minutes. Mine weighs complete only 22 lbs.

Lee Valley, Ont., Can.

HOME-MARKET PROTECTION

BY W. I. LIVELY

Of all the problems which confront the beekeeper, that of marketing his crop is one of the most trying and difficult. Honey is not the staple article of food that it should be; but the campaigns to educate people to its value as a food are doing much to increase the consumption; and more intelligent methods of marketing would greatly relieve the situation. Beekeepers generally pay too little attention to their local markets. There is too much of a tendency to rely upon the wholesale business to place the crop before the consumer. It does it after a fashion, but at a loss to the producer and a higher cost to the consumer, both of which militate against the business of beekeeping.

Some time ago, through conversations with traveling salesmen, I learned that Arizona honey was selling in California, and California honey in Arizona, both at prices which would spell bankruptcy to the producer if they continued. Practically, the beekeeper was paying freight and middleman's profits for the privilege of selling his product in a neighboring state. The same thing is being done constantly all over the country. The shorter the distance and the fewer the middlemen between the producer and the consumer, the greater the profits to the producer, and the smaller the cost to the consumer.

Now, that does not mean to sell at any old starvation price in order to unload your crop at home. *Above all, protect your home market and protect your fellow beekeeper.* During the seasons of 1912 and 1913 I worked up a nice market in a city some distance from my home. In the fall of 1914 the war and other causes depressed the shipping market. Other beekeepers, some of whom I knew, and who are fine, well-meaning fellows, followed my footsteps and flooded the city with their brands at a price with which I could not afford to compete. The result was that I lost practically all my trade there. I found the method of selling was something like the following: Mr. A. took some samples to a merchant and offered honey for sale. The merchant asked his price and he named it. The merchant informed him that he could buy from Mr. B. at a lower figure, and generally this was the case, though not always. Mr. A. then offered to sell a trifle under Mr. B., and closed a sale. Mr. C. then undersold both of them, and, like the story of the little fleas, this continued "*ad infinitum*" until the price reached a level below the cost of production. I found men selling honey in three, five, and ten pound packages at practically the same price they were getting for it in sixty-pound cans. Others were disposing of from five to ten gallons at the same price for which it was being shipped in carload lots. It is passing strange that men with intelligence enough to raise bees and harvest a crop of honey should show such a lack of common sense in disposing of it.

This season, with the outside market "shot to pieces," and times not up to normal, I marketed my entire crop, amounting to nearly seventeen thousand pounds, at a reasonable figure, and not a pound of it went outside my home state. I have orders on file now which will take probably half my coming crop. Of course it takes time, patience, hard work, and good judgment; but it can be done by others as well as myself. I set my price and sell at my price, or do not sell at all. I am not unreasonable. I ask only a fair price; and when I cannot get a price for my crop which pays me for my time and labor spent in raising it I shall quit the business.

Now lastly, and most important of all, if you wish to make a success of home marketing, *protect your home merchant.* In the city which I mentioned above, the merchant complained that their sales were very slow, and honey was a drug on the market. I soon found out the reason. The beemen were peddling their wares from house to house, and selling at the very same price that they were selling to the merchants. Their wholesale and retail prices were identical. When the merchant finds out the true state of affairs, as he is sure to do in a short time, his only recourse is to put his buying

price below the beekeeper's selling price so as to make his legitimate profit. Thus the beekeeper, by making his wholesale and retail prices the same, has cut his wholesale still lower. Besides, there is no surer way of getting on a merchant's blacklist.

The plan I follow is this: I go to some of my home merchants with whom I am well acquainted, and whom I know to be shrewd, honest business men. I consult with them as to prices, find what they consider a fair retail margin, which is generally from fifteen to twenty per cent. We agree on a wholesale and retail price, and both sell at the same price. For example, I carry a ten-pound pail as one of my leaders. I wholesale it to the merchant at eighty cents, and sell to any and all wholesalers at that price unless in job-lot quantities of several hundred, when a small additional margin is allowed. The merchant retails it at one dollar. I retail it at the same, whether it is bought at my apiary or delivered to the customer's door, *and I never peddle among the merchant's customers.* It would be business suicide, so far as that merchant's patronage is concerned. I simply give the merchant a square deal, and invariably he returns it. I guarantee my goods to the merchant, and request him to guarantee them to the customer. I put up nothing but the best, and back it up with a "money back if not satisfied" proposition, and protect the retailer by standing good for any goods returned. During the last three years I have had only two or three pails sent back. In dealing with a business man a pleasant, courteous, business-like manner, coupled with honest dealing and fair treatment, will gain you a friend and hold a customer.

Glendale, Ariz.



The bees had built six combs of brood and two of honey. Query: Had these bees been accustomed to an eight-frame hive?

ANOTHER FRESH-AIR COLONY

BY IONA FOWLS

We learned the other day of a very progressive colony of bees that have evidently been influenced by the fresh-air agitation, for they have taken up their abode outdoors with the apparent intention of staying all winter. We took a 28-mile drive to hunt them up. We found them located near the river on a farm between Wakeman and Birmingham. They were suspended at the end of a long limb hanging out over a very steep bank so that we had a rather exciting time getting their picture.

At first all we saw was a large cluster of bees; but by smoking them back we finally exposed the combs to view and found they had built two good combs of honey and six of brood, the combs being arranged exactly parallel to each other, and very nicely spaced.

Oberlin, Ohio, Sept. 18.

A PRECAUTION WHICH IS GENERALLY OVERLOOKED

BY R. KELP

It is surprising that the simplest thing is overlooked so often. The best conditions for wintering are so varied and so much in dispute that no trustworthy rule can be established. One person claims best results by packing so warmly, regardless of expense, as to have no trouble with condensed moisture; another puts his faith in upward

ventilation and absorbents; another says, "Let them take their chance *á la Nature*."

But, to consider actual conditions, it is next to impossible to avoid condensation, at least to some extent, and the absorption of condensed moisture by the hive walls and cover is ruinous to a degree. Another prevents this most effectually by coating those surfaces with melted paraffin, and then, to get rid of the water of condensation in the quickest way, tips his hives forward during winter by putting two or more inch blocks under the back end. This position in winter is beneficial in two ways at least. It brings the entrance into a position which is less exposed, and it positively prevents snow water and rain from running in. And—most important of all—the condensation on the under side of the cover clings to it long enough to run to the lowest (front) end before it drips. The bee cluster is thus saved a fatal wetting.

Many beekeepers to whom I have suggested this have said, "Why, I never thought of that!" Just another case of the simplest thing overlooked. It is said, "The world is made up of small things"—and beekeeping no less.

Lyndhurst, N. J.

AN INTERESTING DIARY RECORD OF WEATHER CONDITIONS IN WASHINGTON

BY A. M'CULLEY

Several times I have been tempted to mention instances of bees flying with the thermometer standing at 18 above, but have refrained from doing so as some would ask what I had been drinking. This is a queer country. The following readings were taken in the morning when I got up. Perhaps before noon there would be from ten to thirty degrees' difference in temperature.

Oct. 26, 1904, first frost; Nov. 13, 2:30 P. M., rain; Nov. 14, wind a gale. Rain hard 15th and 16th. Dec. 31, beautiful sunshine; air chilly.

Feb. 4, 1905, beautiful weather; thermometer 28 above; 8, 9, 10, 13 to 20, ther. 15 above. Feb. 21, very warm. March 20, 21, 25, rain, cold; 29, sunshine; warm. May 6, caught a swarm of bees. Nov. 28, first snow; 29, snow all gone.

March 10, 1906, commenced to get cold. March 12, cold—ther. 28 to 26 degrees above. March 15, ther. 10 above. Dec. 30, first snow today.

Jan. 14, 1907, ther. 2 above. Feb. 10, warm, pleasant; drones flying. April 22, frost; ther. 32. Bees swarmed today. Dec. 1, cut a tree for bees; bees 210 feet high; ther. 64; tree 7 feet through.

Jan. 5, 1908, bees flying. Jan. 23, ther. 54 in shade. Dec. 26, bees flying as in summer.

Feb. 2, quite warm and pleasant. Bees had a good fly March 4 to 8; lots of brood. March 9, 1908, bees flying as in summer. March 20, first swallows. Sept. 25, frost, very heavy; no damage. Nov. 3 to 8, very warm; ther. 64 in shade; bees carrying pollen. Nov. 15, 19, 23, bees carrying pollen. Dec. 1, 2, 3, ther. 28 to 26 above; bees flying. Dec. 13, 17, ther. 28, bees flying; Dec. 18, ther. 16.

Jan. 4, 1909, first snow; Jan. 5, ther. 8 above; 5 inches of snow. Jan. 9, ther. 2 above; 11 to 14, ther. 1 above; river frozen over. Feb. 10, 11, ther. 29 above; bees flying. Feb. 18, very warm. Nov. 13, first frost, ther. 30. Nov. 14, 15, ther. 18 above; Nov. 18, 20, ther. 55. Dec. 4, 5, ther. 22 to 18; no wind; a little snow. Dec. 28, snow and wind, blizzard.

Jan. 2, 1910, clear and cold; ther. 10 above. Jan. 6 to 10, rain; ther. 22; a few flakes of snow. Jan. 14, warm; ther. 40; bees had a good fly. Jan. 20, freezing; ther. 28. Jan. 22, ther. 50; bees flying as in summer. Feb. 1, ther. 28 to 32, cold. Feb. 6, 7, bees flying as in summer. Feb. 8 to 10, warm; ther. 48 in shade; bees flying, carrying pollen. Feb. 16, 17, ther. 16; 6½ inches of snow. Feb. 21, ther. 20; snow, cold; ground just covered with snow. Feb. 23, ther. 28; snow 4 inches; rain. Feb. 24, rain; ther. 36. Feb. 26, ther. 38. Feb. 27, ther. 42. March 2 to 10, warm wind; ther. 48. March 10, ther. 60; bees heavy with pollen. March 12, ther. 60 in shade; wind from north. March 16, warm; ther. 64 in shade. March 26, ther. 28. April 5, rain; ther. 42. April 4, first swallows today. April 14, ther. 42 in shade at 8 A.M.; 9:30, 72 in sun. April 18, no fire in office; ther. 72 in shade. Sept. 10, heavy white frost this morning; froze hard in some places. Dec. 30, first snow, 1¼ inches; ther. 28.

Jan. 3, 1911, snow gone. Jan. 5, ther. 41. Jan. 9, 10, 11, snow; ther. 26 above. Jan. 12, 13, 14, ther. 18, 8, and 22; snow heavy; sunshine at the same time. Jan. 15, 16, 17, ther. 12, 38, 34; rain. Jan. 27 to 29, ther. 28; foggy. Jan. 34, ther. 34; bees flying. Feb. 2, ther. 18 above. Feb. 8 to 11, ther. 48; bees flying as in summer,

very strong. Feb. 20, foggy morning, sunshine afternoon; ther. 38 to 44; bees carrying pollen. Feb. 23, ther. 44; rain, snow, wind, all at the same time. Feb. 24, 25, 26, 27, ther. 20 in shade, 64 in sun; bees carrying pollen. March 2, 3, 4, ther. 32 to 72. March 12, 18, ther. 34 and 26; March 23, high wind, 40 miles per hour from southwest. April 1, ther. 38. April 5, white frost; ther. 28. April 11, 12, three inches of snow. April 13, frost. June 19, 20, white frost; no damage. Oct. 1, went above Evans, 7 miles; got a swarm of bees hanging on a log—small colony. Nov. 10, 11, snow 5½ inches. Nov. 11, ther. 8 above. Nov. 13, rain, thaw. Nov. 27, bees carrying pollen. Dec. 1, bees flying nicely; ther. 42. Dec. 30, 31, snow 5½ inches.

Jan. 1, 1912, clear and cold. Jan. 14, ther. 48; bees flying almost like swarming; very strong. Jan. 18, 19, warm, bees flying as in summer; ther. 45. Jan. 20, bees flying; very warm like summer; willows bloom; dandelion bloom. Jan. 28, 29, ther. 50 to 62; bees flying as in summer. Feb. 11, 12, ther. 54; bees carrying pollen; good. March 8, ther. 78 in sun; wind from north; cool. Dec. 12, a light spit of snow.

Jan. 6, 1913, 8 inches of snow; ther. 28. Jan. 17, rain; snow going. Jan. 18, snowing hard; ther. 28. Jan. 19, ther. 10 above. Jan. 23, rain; no snow. Jan. 24, 25, bees flying; ther. 44. Feb. 6, 7, ther. 40. Feb. 23, ther. 20 at 8 A. M. March 1, ther. 40; bees flying as in summer. March 11, 13, heavy thunder; ther. 28. March 18, snow falling; ther. 30. March 19, ther. 26; three inches of snow. March 20, ther. 18; some snow. March 24, 25, snow; ther. 20 to 26. March 27, cloudy; ther. 50. March 30, 31, ther. 58. April 7, first swallow; ther. 38. April 8, white frost. April 10, ther. 72. April 11, ther. 110 in sun, 92 on wall in shade. April 11, evening, rain; cooler. April 27, ther. 62 in shade. May 4, frost; ther. 32. May 10, 11, warm; rain; ther. 76 in shade. Oct. 7, 8, 9, ther. 40. Oct. 13, some thunder; ther. 28. Oct. 21, ther. 50. Oct. 28, ther. 22. Nov. 14, ther. 26. Dec. 1, 2, 3, 4, cold foggy; ther. 28. Dec. 15, 16, ther. 50; barometer fair. Dec. 21, ther. 26.

Jan. 11, 1914, ther. 40. Jan. 22, light snow. Jan. 24, ther. 26; snowing heavy; 27, snow 2 inches; ther. 20. Feb. 4, ther. 18; Feb. 5, 6, ther. 28 to 30; bees flying.

Snohomish, Wash.

THE RESULT OF THE SEASON IN NORTH VERMONT

BY JEAN WHITE

Bees in the northern part of the state have not done much this season. They wintered very unevenly, some losing all or nearly all, some half, and some losing none. One farmer with a few colonies left one out without extra covering of any kind in a single-walled hive. It was a late swarm from 1914, with seemingly but little to winter on. We had but little snow, so this did not protect the hives, yet this swarm was alive and frisky enough so that it swarmed twice this summer. The other hives in the house-cellar also wintered well.

One neighbor less than half a mile away lost all in the house cellar with dysentery. Another within a third of a mile lost, out of some thirty colonies put in the house cellar, all but sixteen. Another, a mile away, put in five and wintered them all; while another with five in a bee-house lost all but one, and this was weak. This colony did not swarm this season, but finished a nice super of honey, and has the body full of brood and honey.

Bees in my neighborhood swarmed very freely, and have done no work, to amount to anything, in the supers. I tried artificial swarming by raising a frame of brood with the queen, over the main hive, and separating when she had several empty combs filled with eggs and brood. This left the workers with the old hive and new queen and full of bees, but they did nothing in the supers until after the clover flow was over in August. The new hive is full of bees, brood, and honey; but even the outside frame of a ten-frame hive has beebread and some brood in it, so they have plainly fixed it so I can't extract any honey without destroying some of their numerous family. They did not swarm, however, so the two colonies are very strong. The spring until June 20 was cold and dry; but the pastures were white with the low white clover. My own theory of lack of surplus is that many field bees never got back to the hive when the winds were high and cold, and so the force was not large enough to gather a surplus. Since that time it has been wet and warm. I tried to feed my bees after haying time, but they refused it, so of course they were getting all they needed of something they liked better.

Last year at the close of haying all the

bees within a mile went on a rampage. They hung around the house doors and windows, robbed out weak colonies, and were a nuisance generally. I tried to feed; but the hives with empty bodies on, and food in these, were black with robbers from a neighbor's apiary trying to get the syrup. The berries were covered with them—as many, sometimes, as three on one raspberry. This year there are no bees in the berry-patch at all. Last year many berries were sucked as dry as though dried by artificial heat; this year there are no such berries, and no bees there other than now and then a little yellow wasp.

It seems that the bees must go into winter quarters in the best of condition; but our profits for honey this year are small. There are no large apiaries in the north of the state, and most of those who keep them allow them to swarm naturally. I am thinking that next season I will remove a frame or two of brood and the old queen from the hives as a nucleus for a new swarm, and introduce a young queen to the parent hive without waiting for them to raise one themselves, and see how that works. I am also minded to try the Pearce method with one hive, except that I shall not put them in a window but leave them on their stand.

Unlike most people who handle bees I have never used a smoker. I often open the top of my hives without gloves or veil; but if I plan to handle frames I put on both; and by moving quietly they do not get much excited. All through the spring they do not seem to resent being handled at all, especially if I have been feeding them; but later, when they have stores of new honey that must be disturbed, they are somewhat indignant, but nothing fierce after all. I think I have a very gentle race of bees, however, because those I had some time ago were much more difficult to handle, and I tried a smoker; but the smoker bothered me more than it quieted the bees, and so I discarded it altogether.

I have been putting starters in some frames. I had no foundation, and could not wait to send for any; so I took some empty worker comb and cut strips 1½ inches wide, and fitted these into the frames and tied them in snugly. The bees seem to like this very much. They fastened it, then cut out the string, carried it out of the hive, and are busily building more comb. I think that next time I will fasten it to the frame with beeswax and rosin, and save them the trouble of gnawing off the strings.

We are told that it does not pay to make our own hives; yet that is just my plan for another year. Our supplies have to come several hundred miles, and the freight on a five-hive lot is considerable. They must be nailed together and painted anyhow, unless one feels able to buy them all ready, which makes them cost high. I will have the bodies, supers, tops, and bottoms sawed from lumber here, and will send for the inside fittings. There is about twelve feet of lumber in a body, super, etc. Lumber is about two cents a foot undressed. If properly cut, it will be no more work to set it up than to set up those I buy. The saving will be the greatest cost, and this will not be heavy in this locality. May be I am counting my chickens unhatched—anyhow, I will tell you by and by how I come out.

Glover, Vt.

SEPTEMBER SWARMS

BY H. M. LEACH

The past season has been the most remarkable I have ever known. During June, July, and August, only a small amount of honey was stored; but, beginning with the last week of August, and so far this month, my bees have stored many pounds of fine light-colored honey. One colony in ten days filled and capped a 32-section super. Now, what has interested me most, and seemed unusual, is the swarming.

Some of my colonies cast large swarms as early as May 17, and during the first and second week of September they have cast large swarms again. The new swarms are doing well. What would cause them to start swarming in September when they were furnished plenty of room to work? Some of my neighbors have had the same experience with swarming this month. My last swarm came Sept. 16. It was a large strong swarm, and is getting along well. From my six largest colonies I shall get 500 pounds extracted and comb honey, and all made since August 20. No dark honey has been stored in supers.

I have had bees swarm but once before in September, and that was twenty years ago.

Hiram, O., Sept. 20.

[See editorial last issue.—ED.]

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

With one glance at the outside of a hive, an expert beekeeper can tell what is going on within, but in goldenrod season he don't need to look at all. He just smells 'em.

Why Packing Material or Absorbents Become Wet

I am especially anxious to get some advice from you relative to a point involved in wintering bees. Some of my hives are single-walled, some double-walled. Heretofore I have, when putting them in shape for winter (I winter on summer stands) placed three or four small sticks, each about the size of a corncob, crosswise directly on top of the brood-frames. Over this I put a piece of burlap. Then I put on a super, filling it with sawdust or shavings. In the case of the double-walled hives this material would be dry in the spring. In the case of nearly all the single-walled hives the contents of the super just above the brood-frames were wet in the spring. On the single-walled hives I put a covering of newspapers (that is, on the sides), and over all I put a sort of jacket of tar paper. I have wondered if at least, in the case of the single-walled hives, I should put a super cover directly over the frames instead of the burlap.

Bees in this section of the country have been unusually cross this year. There has been much complaint. Can you suggest any reason for this?

A farmer has complained to me about his bees hanging around his barn a great deal. I told him that I would look into the matter. I can think of no odor that would attract them there. Perhaps you can give a possible explanation.

Chadron, Neb., Sept. 11. E. P. WILSON.

[We are not surprised at your experience. When the packing material is too scant in amount there will be a great deal of condensation inside of the hive. This naturally passes upward, making the packing damp; and when the weather is severely cold this damp packing will freeze. It is then worse than no protection at all. When single-walled hives are used there should be a sealed cover between the packing and the colony. If double-walled hives are in use, there should be a sealed cover unless the packing material is very abundant on top and sides—not less than six inches on sides and ends nor less than ten inches on top. Under such conditions Dr. Phillips says it will not make very much difference whether a plain board or a porous cover is used over the brood-nest. The general practice, however, when packing is ample, anywhere from six to ten inches, is to use the absorbent plan. But when so used there must be a space over the top of the packing, leaving room for the free circulation of air through ventilating holes in the cover at the ends. When a sealed cover is used these ventilators are not needed. We would advise you to use a super cover on your single-walled hives, wrapped in paper, and possibly a sealed cover for double-walled hives. If the packing material is less than ten inches on top, and three inches on the sides and ends, we would use a super cover.

Some seasons bees are much crosser than at others. They will be very cross when the flow is intermittent, especially if it comes on heavily and shuts off during the middle hours of the day. This is one reason why bees are so cross during a buckwheat flow. They are also cross when they work on honey-dew. The dews of the morning soften the saccharine matter on the leaves, and then the bees work on it at a furious rate. As soon as the sun dries up this sticky stuff the bees stop their work, and then they are cross—awfully so. Sometimes the honey-flow is intermittent on clover, basswood, the goldenrods, and the asters. When the yield stops suddenly on account of rain or cold, the bees will become cross. Chilly weather is apt to make bees cross at any time.

When bees frequent barns or stables they are undoubtedly in quest of artificial pollen which they obtain from the bran or meal in the chopped feed given to the cows or chickens. They may be quite troublesome at such times; but as soon as natural pollen is available they will immediately drop the artificial product.—ED.]

Requeening with Queen-cells Not Satisfactory; Difficulty of Raising Cells where there has been European Foul Brood

Having read so much about requeening by using ripe queen-cells I attempted to requeen a number of colonies by that method this season; but only about one queen out of each dozen reached laying age. At first I used cells from which the queens were ready to emerge; but after reading Mr. Doolittle's definition of a ripe queen-cell, which he says is a cell from which the queen is to emerge in from 20 to 30 hours, I thought that my trouble lay there; but after trying a number of cells of that age I could do no better. Very rarely were the cells destroyed; but the virgins disappeared, and the colonies tried to rear queens of their own brood. It did not seem to make any difference whether the colony was Italian or black. The colonies which were hopelessly queenless did better, but not satisfactorily.

I have been having quite a fight with European foul brood, and have found that in colonies where there has been any of the disease during the season

it is almost impossible to rear queens artificially, for the larvæ almost always die. Even in colonies that showed no trace of the disease among other brood, it would develop in the queen-cells. The giving of Italian queens after keeping the colonies queenless for ten days or longer removed all traces of the disease among worker and drone brood in all but two colonies, and these were not very strong when the queens were introduced; so the queens were removed and brood given from healthy colonies from which they succeeded in raising queens, and there are no traces of disease among them since the young queens have begun laying.

I tried the McEvoy plan of treatment at first, but found it useless, as the bees were all blacks. It did succeed, however, with an isolated colony of a neighbor, though they were almost if not quite pure Italians.

Tangent, Ore., Sept. 23. H. E. WEISNER.

[Your difficulty in requeening by the use of ripe queen-cells is rather unusual. We don't know how to account for it unless it was the peculiar season we have been having of rainy, cool, and chilly weather. Our own queen-rearing operations early in the summer were greatly handicapped, and we attribute it to the bad weather. During bad days many virgins would get lost—at least a much larger percentage than usual would fail to mate.

We have not heard of cases before where the larvæ in queen-cells would die in colonies where there had previously been European foul brood. Have others had a similar experience? It would look as if European foul brood could be in a colony and not show itself in the worker brood.—ED.]

Well-known Beekeeper Loses Hand in Circular Saw

Dear Mr. Root:—I fell on a circular saw yesterday, and cut off all my fingers and the thumb of my left hand, and I want you to help me in my trouble. You must have among your fifty thousand readers some beekeepers who are or have been in the same predicament as myself, and who can, perhaps, suggest some attachment that I can get made to put on the palm of my hand to enable me to pull combs out of the hives and carry on my business as a beekeeper. I can hear of no artificial fingers here, although I am told I can get an artificial hand if I have mine cut off at the wrist. If any one can make any suggestions, will he kindly come along and thus help a brother beekeeper who has a large business to attend to, and a large family to maintain?

MAJOR SHALLARD.

South Woodburn, N. S. W., Australia, Aug. 17.

[If any of our readers can suggest anything we are sure that our friend would appreciate it if they would communicate with him direct. It is fortunate indeed that it is the left hand and not the right.

Mr. Shallard is greatly worried, of course. The accident took place Aug. 16. With the spring in Australia opening about Sept. 1, it is not hard to realize that such a handicap is indeed serious.—ED.]

No Trouble in Wintering

It has been our practice for the past few years to winter the extracting-supers on the hives. Some are placed above and some below as the case may be. Our plan is to extract during midsummer, and place the supers back on the hives, with the usual queen-excluder between.

During the fall, after the aster flow, we examine all hives for winter stores, and test by weight. Those found with just sufficient stores, or a little more, are merely left alone, after removing the excluder, giving the queen access to the twenty frames. The honey will be found partly in all of the frames, both above and below; so if we extracted the upper set, we would have to feed back into the lower to have sufficient stores.

Those found with most of the stores in the lower are sometimes simply reversed. Entrances are closed down with the usual stick furnished with bottom-boards, and about 6 x ¼-inch opening, which effectually excludes mice. We are never troubled with robbers. When the bees are wintering in the upper super the lower stores are generally sealed, and do not give off sufficient odor to attract. Besides, it is cold and dark on bright days in the lower brood-bodies, and strange bees do not readily enter. And then, again, when it is sufficiently warm the occupants of the hives are down on deck and on guard.

We find in the double hives that the bees do not come out as often as those in a single body, and, furthermore, breed up quicker and stronger in the spring. The frames are protected from moths, which is another advantage. Some of these twenty-frame hives are shaken down the following early summer and used for comb honey. Others, again, are run for extracted after locating the queen and placing that super below, with the queen-excluder between. We winter on the summer stands, and never have any trouble with aster stores.

Cincinnati, Ohio. J. E. ROEBLING.

Empty Super under Colonies Wintered in a Cellar

Last fall I put ten-frame hive-bodies full of honey over five very strong colonies. The bees worked up into the upper hive-bodies. Very few bees died. I put an empty super under a strong colony and another empty super under a weak colony to observe the effect. Less than a hundred bees died in either colony. All the hives are set on bottom-boards two inches deep with screen in front. The temperature of the cellar where they are kept was from 42 to 50 degrees. The hygrometer showed moisture from 20 to 60. The cellar is ventilated by a chimney, and has a cement bottom in which is a spring of water covered by a plank. I used a fire in a wood-burning stove occasionally, to dry excess moisture. I wintered thirty colonies and lost none. I shall put empty supers under all my colonies this fall.

Plymouth, N. H. GEO. W. DOLLOFF.

Home-made Mittens

On page 527, July 1, Grace Allen asks, "Shall we wear gloves?" This reminds me that when I began handling bees I did not use either gloves or mittens; but as I sometimes got my hands so badly stung I soon decided to change. For years I have used mittens which my wife makes of medium-weight bed-ticking, with the ticking cut so as to make the part for the fore finger like the fore finger of a glove. The wrist is made flaring, and is about six inches long so as to come up over the sleeve of whatever garment is worn. If such mittens are made to fit neatly they will be quite satisfactory—at least I have so found them.

Huntington, Ind. J. W. SOUTHWOOD.

What would the Coroner Decide?

Who can describe the appearance of a larva that died from arsenical poisoning as distinguished from a larva dead from pickled brood, chilled brood, or some other familiar cause?

One consolation to those of us who find our bees on starvation rations now when there normally would be a surplus in the supers is that this is great weather for producing white clover for next year's crop. BENJAMIN F. KIRK

Can Honey with a Coal-oil Flavor be Safely Fed to Bees?

Have you had the experience of feeding bees "coal-oil flavor" extracted honey, or has the matter ever been called to your attention as to whether or not it is harmful to the bees? In a carload of honey that we recently unloaded there were over 20 cans that taste and smell of coal oil, oil-cans having apparently been used without being freed from traces of oil. If not harmful to the bees, we can use it for feeding purposes after boiling, to make sure that there is no foul brood as a result, in which event we wish to settle with the shipper in full, as he is a good customer of ours.

Ogden, Utah, Sept. 29. F. W. REDFIELD.

[We have never had any experience in feeding bees honey having "coal-oil flavor." Something would depend on the amount of coal oil in the honey. If it merely smells of the fluid and tastes of it slightly we would not think it would do any harm, especially if you boiled it to sterilize it from any possible infection. While, of course, the kerosene flavor would ruin it for human consumption we see no reason why it could not be used for the bees.

If any of our readers have had any experience we hope they will send it to GLEANINGS.

Incidentally this shows the folly of using second-hand kerosene oil-cans that have not been thoroughly cleaned and aired. They are always dangerous to use.—ED.]

A Swarm from a Colony Packed for Winter!

The weather here has been very unsettled. Expecting an early fall, I fed most of my colonies and packed them for winter.

In the last ten days conditions have changed so materially that I received from one of my colonies, which had been packed for winter, a prime swarm. This has never occurred before in my experience of twenty-five years with bees. White clover at this time is still blooming, but I do not think that there is much nectar secured.

It would gladden the heart of any beeman to see, as far as the eye can reach, our solid sea of gold—the Spanish needle. Bees are working on it from early morning until the blossoms close at sundown.

Our colonies that have been put away for winter were very weak in stores, and I fed them. This expense I could have saved if I had known the weather would change so favorably. The thermometer has been between 70 and 80 every day.

Strafford, Mo., Sept. 8. T. SCHARFF.

Kootenay Beekeepers' Meet

The first annual meeting of the Kootenay Beekeepers' Association was held at the City Hall, Nelson, on Friday, Sept. 24, the last day of the Nelson Fruit Fair, at which there was a representative attendance of members from Nelson and the surrounding districts. The report is as follows:

The Association, organized in September, 1914, is the first beekeepers' association to be formed in British Columbia. Seventy-eight members have been enrolled. Unfortunately the past season has not been a good one for honey production in this section of the Province. Exceptionally fine and warm weather prevailed during March and April, when the bees went ahead and promised well; but the three following months—May, June, and July, were excessively wet and cold. Consequently the clover on which we mainly depend for our surplus honey crop yielded but very little nectar.

The honey that has been taken is much darker in color than usual. In many instances colonies were actually starving in June, and would have succumbed had they not been fed with sugar syrup.

The honey-label adopted by the association for the use of the members, to promote uniformity in putting up honey for sale, has met with general approval, and 3825 have been sold to date.

The balance sheet, showing an excess of assets over liabilities of $43.35, was approved.

The following officers were elected for the year ending September 30, 1916:

Hon. President, W. E. Scott, Deputy Minister of Agriculture, Victoria; President, Major-General Lord Aylmer, Queens Bay; vice-presidents, G. E. Parham, superintendent Dominion Experimental Farm, Invermere; G. Fleming, Nelson. Executive committee, J. J. Campbell, Willow Point; Mrs. Casler, Nelson; J. Hyslop, Nelson; C. G. Johnson, Nelson; W. H. Rixen, Nelson; W. J. Mohr, Nelson; J. Blinco, Creston; B. Lockwood, Fruitvale; E. Alpagh, Kaslo; R. E. Plewman, Rossland; J. H. Vestrup, Nakusp; H. W. Collins, Grand Forks; H. G. Slater, Westley; T. S. Gill, Cranbrook; G. F. Attree, Queens Bay; James Johnstone, Nelson; W. Romain, Nelson; A. E. Watts, Wattsburg; Hon. secretary-treasurer, W. J. Sheppard, Nelson, Hon. auditor, T. M. Rixen, Nelson.

Great Storm in Jamaica

We had a terrific storm in this country on August 12 and 13. It began on Thursday evening of the 12th, and lasted until noon of the 13th. It has done much harm to the honey crop in this part of the country. We were expecting a good crop of honey from the soapwood-trees. The storm flogged their blossoms off and destroyed some of the bees. The banana plantations are all destroyed. This plant is one of our staple crops, yielding honey all the year round. The bees are in quite a delicate position. About half of the field bees were lost in the storm, and about one-fifth of young hives were destroyed in two of my apiaries along the banks of the river. We hope that a change will take place in this locality that the bees may get some honey.

J. U. V. MCCORMACK.

Stonyville Gayle, Jamaica, Aug. 25.

We use a carpenter's scraper to scrape honey-sections. This is a piece of steel 2 x 3 inches, with perfectly square edges. When it gets dull you can put it in a vise and sharpen with a flat file. We like it better than a knife.

Waterloo, N. Y. MRS. J. W. BACON.

AN OLD BOOK, OR MARCUS AURELIUS AND THE BEES

BY GRACE ALLEN

From the quiet heart of an ancient book
Some old, old thoughts reached out to me;
They gripped like grave eyes with a level look,
While I wandered out to my cherry tree.
And there in the shadow-flecked, white-walled hives,
At peace with the darkness, athrill with the sun,
A myriad bees were living their lives
And winning the peace the old book won.

"Choose ever the best, my Sacred Soul!
Be true to the highest self within!
Be one with the whole, the large, wise whole!
Ah, the poise that a calm content may win!"
Through the swing of a thousand years and more
These thoughts have throbbed at the old book's heart,
And the same mood comes with the murmur and soar
Of the brave bees doing their humble part.

A. I. Root

OUR HOMES

Editor

And these words, which I command thee this day, shall be in thy heart; and thou shalt teach them diligently unto thy children, and shalt talk of them when thou sittest in thy house, and when thou walkest by the way, and when thou liest down, and when thou risest up.—DEUT. 6:6, 7.

As I start to dictate this Home paper, I realize that a great crisis and responsibility in this month of October is resting on the people of Ohio; and not only of Ohio, but as the people of Ohio shall act and vote in this coming election (November 2) so will, at least to a great extent, the people of other states act and vote. The great and overwhelming victories in South Carolina, over two to one in favor of banishing intoxicants, is, of course, encouraging, and will help greatly the desired outcome of our work here in Ohio. The liquor people are urging that South Carolina is only sparsely settled. It has no great cities like Cleveland, Columbus, and Cincinnati; and they are urging, also, that the rural population has no just right to dictate to the people in the large cities. They are urging, also, that all of the nineteen dry states are *also* sparsely settled, with few large cities. This may, to some extent, be true; but it does not alter the fact that the burdens in the way of taxation rest on the rural people as well as on the cities—perhaps to a greater extent in some ways. They seem to forget, or purposely ignore the facts and figures just coming to light, in the way our penitentiaries and asylums are filled by the victims of the liquor habit. They forget, also, the facts and figures in regard to revenue which have been held up so much, showing that the taxes are lighter in the dry states, especially Kansas, and far lighter in prohibition towns and cities, than in the wet states and wet cities. An examination of the facts we have given you during the last few months will, I am sure, convince any candid reader of the truth of what I have just stated.*

* Since the above was dictated I find a most excellent article in the *Ladies' Home Journal* for September, written by C. R. Stelze. The article is headed: "Suppose all the saloons were closed, what would happen to the saloonkeeper?"

After giving the enormous figures the "wets" claim that would be lost, and the number of people thrown out of employment if prohibition should come, we quote as follows:

The entire argument is based upon the fallacy that, if the *liquor-dealers* fail to get the money now spent for beer and whisky, *nobody else will get it*. It is assumed that, if a man doesn't spend a dollar for "booze," he will throw that dollar into a bottomless pit, instead of using it to purchase some other commodity which will do good instead of harm, which will have a permanent value, and which will give the workingmen of the country more work, more wages, and greater prosperity in every way than if the same amount of money were spent for beer and whisky.

This morning I am thinking particularly of our Sunday-schools when compared with our saloons. Saloon-keepers recognize, and always have recognized, the fact that Sunday-schools are one of the worst enemies of their traffic, and in a like manner the Sunday-schools recognize that saloons are their worst enemies; for it is recognized everywhere that the saloon-keepers would do away with Sunday-schools if they could. Not only that, they would do away with Sunday as a whole, if they could. In fact, they trample Sunday and Sunday laws under foot at every opportunity. As an illustration, let me give you a little incident. Some years ago the pastor of our church, a bright educated man—a man, in fact, who stood high before the world in matters of education and Christianity—went to a saloon-keeper in our town of Medina (of course, that was years ago) and in a courteous manner urged the saloon-keeper to comply with the law and close up his place of business on Sunday. What kind of reply do you suppose this good man, who loved God and his fellow-men, received? It was this: "I do not 'go a d—n' on your Sunday," etc. The reply showed his bad grammar as well as his lack of courtesy, and lack of care or regard as to *what* happened just so he got his nickel for drink. Yes, the reply showed, also, a lack of reverence or respect for the laws of man as well as for the laws of God; and that reply shows the lack of reverence for any laws the whole liquor party has shown from that time to this.

Now, please do not understand, dear friends, that I mean the Sunday-schools *hate* or have a *spite* against the saloon-keeper. We are enjoined to love our enemies; and the Sunday-schools, even while they recognize that the *saloons* are their enemies, have no desire to injure the *saloon-keeper* himself—only that they are trying to have him give up his damaging business and engage in something that benefits his fellow-men. While we hate the saloons, we are trying to *help* the saloon-keeper; and we are working hard and earnestly to do away with saloons and not injure the saloon-keeper, nor to fight in malice against him. Let me repeat briefly some circumstances of years ago.

Near the old farm where I was born was a little town, or perhaps I should call it four corners, where was a brewery and two saloons—at least, the two country stores sold beer. Sunday was their great day for

business; and every Sunday night they had what the folks roundabout called the "Dutch dance." The great feature of this dance was beer by the kegful, drunk by boys and girls and men and women. At the time of my conversion, at one of our church conferences I spoke of this plague-spot in our county of Medina, and declared the responsibility rested on our church to start a Sunday-school or some sort of mission work in this little town. There were quite a few smiles, I suppose because of my inexperience, for I was young then, and especially young in Christian work. Somebody suggested that I was probably just the one to open up and carry on a Sunday-school in order to correct or counteract the effect of so much iniquity. I cheerfully accepted the task, and started out. I did not suppose the people roundabout that neighborhood had any idea that I was going to attack the beer business, and I was pretty careful about touching the Sunday traffic or the Sunday dances until I had gotten the school pretty well established. It was a novelty in that region; and not only the children but the parents and grown-up people came from quite a distance around. I taught the little boys and girls to come up on the platform and repeat scripture texts; and the parents were greatly pleased to see their children show off their ability in their childlike ways in this direction. One little chick especially used to please the audience by standing up on the platform by the side of the superintendent while she sang

I am Jesus' little lamb;
Happy all the day I am.

The Sunday-school became such a success that one bright day I shall long remember the seats were all full, and the standing-room was all occupied; and as it was warm weather with the low-down windows clear up, there was a little crowd outside around each window; and you may rest assured that I left for home happy and praising God after the school was over.*

At our prayer-meeting last evening the good pastor said that no great reform was ever started without having its ups and downs. He said that sometimes the reaction is such that things go *away* down, and people lose faith. But he said if the praying men and women just have grace enough to hold on we shall soon find the ups go a little higher, and the downs not quite so low, so that real progress is being made, even at times when we become sadly discouraged. I wonder if this is not going to be true in our work of voting Ohio dry. We had one of the "downs" in our failure a year ago; and if we fail during this coming election we are surely not going down as *deep* as we did a year ago. May God help us; and now let us get back to that Sunday-school not far away from the brewery and saloon.

Sunday, as I have said, was one of the big days for selling beer; and pretty soon the man who owned the brewery began to be suspicious that this popular Sunday-school was drawing away his customers. By and by the attendance, especially among the boys and men, began to fall off; and I well remember one Sunday that, although there was a fair-sized school of girls and women, there were less than half a dozen men and boys present. I made some inquiry as to what was the cause, and one of the women informed me the brewer during the Sunday-school hour was *giving away* beer to our Sunday-school boys, and, as a consequence, my whole school of men and boys were nearly all over at the brewery. I cut short the exercises that day, and with the little prayer in my heart, "Lord, help," I started for the brewery. The boys present, and some of the girls, followed to see what would happen. Before I got there I heard the noise of revelry. I presume I felt something as Moses did when he came down from the mount with the tables of stone and found the people worshiping the golden calf. Somebody looked out of the open door and saw me coming, and out of the open *back* door the whole crowd of boys and some of the men put out on a stampede and hid in some bushes just back of the brewery. I spoke pleasantly to the manager, and asked why the whole crowd of men ran when *I* came in sight. He said he did not exactly know, but granted me permission to go after them. You will remember the text, "The wicked flee when no man pursueth." It was one of the favorite ones that the little girls used to repeat on that Sunday-school platform. I suppose it was a favorite text because it was short and easily remembered. Well, I went out and found a great part of my Sunday-school in the bushes. Said I, "Why, boys, why should you run when you see *me* coming? You certainly are not afraid of your old teacher, are you?"

They laughed, and hung down their heads, and finally, by a little urging, they came back into the brewery. I asked the brewer to give me permission to talk to them, and I was pretty careful of my

* It just occurs to me that one of my plans for getting up enthusiasm in Sunday-school was by offering a pretty little text-card to every boy or girl who would get up before the school and repeat a verse. They would keep these text-cards; and when they had received a certain number the cards were exchanged for a pretty little Sunday-school book.

words, you may be sure. I think we sang a hymn they were all familiar with; but it happened so many years ago that I cannot fully remember. I *do* remember, however, asking permission to kneel in prayer; and I prayed most earnestly, not only for all my Sunday-school scholars who were present, but for the brewer himself, his wife, and for his family; and I prayed, too, that, for the *sake* of the wife and family, if for no other reason, the father might be induced to engage in some business that would be beneficial to his fellow-men instead of being harmful. Forty years ago strong drink had not made the havoc here in Ohio that it now has. When winter weather came I told the children there would be a Sunday-school every day all winter. If nobody else came I would be there alone, and there was quite a little rivalry as to who would stand by the teacher. They were, a great part of them, Germans, and they had a German name for a Sunday-school teacher, but I cannot recall it now. I think I said at that conference mentioned (in the foregoing part of this talk) that if a Sunday-school was started and kept up long enough it would do away with the liquor business in Abbeyville, especially if the liquor trade did not hold out the longest and kill the *Sunday-school;* and I never lost faith; but it took *eight long years* to starve out the brewery for lack of patronage. When the brewer quit, the two stores also gave up the traffic; and a good woman who has charge of one of the stores told me a few days ago there had never been, to their knowledge, drink of any kind sold in Abbeyville during the forty years that have gone by; and yet it was all done quietly in the line of "peace on earth and good will to men." I wonder if our Sunday-schools in Ohio are waking up to their privileges and opportunities just now. Are they recognizing the responsibility that rests on them in this crisis?

Some years ago a saloon was started on an island down in the Ohio River. They believed that, by getting off on that island, they would be outside of the pale of the law; and when the place got to be a stench for both Ohio and Kentucky, some good man or woman started a Sunday-school there; and, if I am correctly informed, like the other place mentioned, the Sunday-school came out ahead.

Now, in view of the facts given above and in these pages during the past few months, is it a possible thing that any voter in Ohio, especially one who keeps bees and reads GLEANINGS, will vote wet? God forbid. Not only our Sunday-schools but our churches, our day schools, our high schools and colleges, all places of learning, our physicians (at least the progressive ones), our manufacturers, our railway companies, our penitentiaries, our asylums, our almshouses of every sort, demand a higher order of manhood and womanhood where "safety first" and "safe and sane" are the rule. All of these mentioned above are agreed in regard to the damaging effect of strong drink on humanity—even moderate drinking. Is it a possible thing, dear friends, that the bad people in Ohio, or perhaps I had better say the *bad voters,* shall outnumber the good? If the women, the mothers of our land, could be allowed to vote, there would certainly be no question; and that explains why the liquor party are fighting female suffrage tooth and nail. May God hasten the time when the mothers and fathers shall *all* have a voice in *making* and *enforcing* the laws of Ohio and of the whole United States.

"THE RIGHT TO BE BORN SOBER, WITH A SOUND MIND AND A SOUND BODY."

In an address in behalf of good government, delivered at Minneapolis on August 22, ex-Congressman John J. Lentz, of Ohio, put it this way:

"We ought to concede to our babies the right to be born sober, with a sound mind and a sound body, rather than defective because of the alcoholism of their parents. They have the right to be born in an environment that will not deliver them to reform institutions in early manhood and womanhood. We quarantine against cholera and smallpox. Isn't it more important to protect our babies against alcoholism?"

My good friends, is not the above good sound common sense? and will not making Ohio dry in November go a long way toward bringing it about?

STRAWS SHOW WHICH WAY THE WIND BLOWS.

And by the way, friends, there are quite a number of straws floating about that indicate pretty surely the direction of the prevailing wind. Read the following, which I clip from the Cleveland *Plain Dealer:*

VOTES OUT ONLY SALOON; ARCADIA, OHIO VILLAGE, REFUSES TO SANCTION BAR.

FINDLAY, O., Sept. 28.—The only saloon that has been permitted to exist in Hancock County the past seven years was voted out today at Arcadia by a majority of twenty-eight. The saloon was started in that village two weeks ago, and it is said it had a rush trade from Findlay and other near-by dry points.

The saloon would have been voted out the first week of its existence, but the council would not meet to accept the petition of the drys.

You see the people there were humbugged by the "home-rule" proposition; and no doubt that one saloon did a rushing business, as we are told, until public indignation got up to such a point that the

saloon was put down and out in just two weeks; and it would have been put down and out in one week if it had not been for a wet council. Now, here are two important morals pointed out by the above straw. First, here in Ohio, at least, when we find we have made a bad bargain, let us undo that bargain as soon as possible. Second, if we find we have been so stupid as to permit a wet council to rule the town, let us get busy at once and elect dry men for such an important office.

Here is another straw floating in the right direction, which we clip from the *American Issue:*

ASHTABULA DRY AND WET.

During April, 1914, the city of Ashtabula was without saloons. That month there were 28 arrests for drunkenness. April, 1915, was the first month of the Home Rule saloons in Ashtabula, and there were 115 arrests for drunkenness.

When Ashtabula was without saloons the man who was visibly intoxicated was arrested. Now scores of such men are not arrested. The Ashtabula papers say it would be impossible for the police to arrest all the drunken men who are on the streets Saturday evenings.

One Ashtabula merchant says his business has fallen off $10 a day since saloons are back.

Does it pay?

Still another straw. This one comes from the New York *Evening Journal* for Sept. 27.

This journal claims to be "America's greatest evening newspaper;" and I hope it *is* true, because of the stand that this daily takes. First they have a picture of a criminal in his cell wearing the stripes, and a bottle of whisky just over his head; and under the picture we find the following:

This picture is published to fix your attention once more on the whisky question as it affects *the entire nation*, not merely the inhabitants of the prisons.

Why are men allowed to manufacture and sell a drink that every doctor and every sane man recognizes as a *poison?*

Why is it any more legal to sell whisky to a drunken man than to sell a knife to a maniac or cocaine to a drug fiend?

Whisky has done and is doing a thousand times as much harm as all the drugs put together.

The man who sells a drug to another is put in jail promptly as a criminal, whereas any man can carry on openly, licensed and protected by the state, the business of selling the whisky that manufactures criminals.

By the way, we have one or more daily papers in the city of Chicago that have rejected liquor advertisements and have come out square and bold against the traffic. The above reveals, also, the fact that we have one (God grant that there may be more) in the great city of New York that defies the rum demon. Now, is it not high time that in the great city of Cleveland we have at least one daily on the dry side? When any of our readers find it, will they kindly let me know? It would be too much, perhaps, to expect that *Cincinnati* should follow suit very soon.

THE NEW DAVIS LAW IN FLORIDA TAKING EFFECT OCT. 1.

Section 4 of this new law reads as follows:

That it shall be unlawful for any person keeping or carrying on, either by himself or another, a place where intoxicating liquors, wines, or beers are sold by retail or wholesale, to employ a minor or a female in his place of business.

We see by the *New Republic* that on Sept. 25 a delegation of 250 girls and women, employed in the liquor business in Jacksonville, called on Superintendent Crooke, of the Anti-saloon League, to see if he could help them. Mr. Crooke called a meeting of the Christian and temperance people of Jacksonville, and made arrangements for a "free employment bureau," to make it their business to find places for the women and girls thrown out of employment by the new law. This was certainly a fine illustration of practical Christianity.

We are told that these women and girls were employed in the wholesale liquor-houses in Jacksonville.

Below is a letter just received from the superintendent of the Florida Anti-saloon League:

Mr. Root:—I am very much pleased to receive a copy of your paper. Though I have never had any dealings with bees, your paper is interesting, and I have been glad to read a number of the editorials written by yourself.

I hope you will soon be in Florida to enjoy the delightful sunshine of our fall and winter months.

I enclose a copy of the Davis law which has just closed up about 200 saloons in Florida; and if the law proves to be constitutional, these saloons will remain closed, leaving only about 75 in Florida.

C. W. CROOKE, State Supt. Anti-saloon League.
Jacksonville, Fla., Oct. 5.

I think I told you that after we failed last winter in getting statewide prohibition the Davis bill was presented and carried as a means of "regulation." Below I give you just *one clause* of said regulation:

SEC. 8. That no gates, doors, windows, or openings of any kind shall connect the place of business of any dealer in intoxicating liquors, wines, or beer with any house or lot so as to permit ingress or egress out of such house or lot from or into such place or business; that no blinds or screens, chairs, settees, benches, or tables shall be set up or used in such place of business; that no musical, vaudeville, or other attractions shall be permitted in such place of business; that no game or games shall be permitted to be carried on in such place of business, nor shall any loitering be allowed therein; that no obscene or sensuous pictures or statuary shall be displayed in any such place of business; that throughout the night a light or lights shall be kept burning in such place of business, and no doors, blinds, curtains, shades, screens, or other things shall be allowed to prevent persons on the outside of such place of business from seeing inside thereof at all hours of the day and night, and it shall be the

duty of the proprietor of such place of business to see that this section is complied with.

No wonder the liquor men have decided that regulation, when it comes to be enacted as above, comes pretty near *annihilation;* and right here is a moral for the people of other states who are considering prohibition. If you fail to get *that*, go with all your might for regulation.

THE OUTCOME OF THE DAVIS LAW IN FLORIDA.

Today is October 9, and we have been receiving day by day cheering news in regard to law enforcement. Below is a sample of it clipped from the *New Republic:*

The Davis act has struck them and their business such a terrific blow that they are perfectly stunned by the force of it; and so hard was the fall that only 23 survive of the 147 dealers of last-year tax.

114 SALOONS CLOSED IN JACKSONVILLE ALONE.

On the morning of October 1 only 23 liquor-houses, wholesale and retail, opened their doors for business, and the sheriff declared that the law was thoroughly enforced throughout the city and county.

Of the former dealers 114 failed to open their doors. At this writing, October 2, nearly all of these have dismantled their barrooms, removed the stock of liquors, and have forever gone out of the liquor traffic.

MAKING A DESERT OF THE GREAT CITY OF CHICAGO.

For some reason, and we hope it is for a good and honest one, the mayor of Chicago declared the law should be enforced, and for once in the world, at least, the saloons should all stop business on Sunday; and on last Sunday, Oct. 3, the edict was pretty well carried out—at least the saloon-keepers made a big protest saying they could never get money enough to pay for their licenses if their best day for traffic were ruled out. On reflection, however, they evidently decided they had given themselves away, and so they turned square about, and declared they would give the good people of Chicago "enough of it." See the following, which we clip from the Cleveland *Plain Dealer:*

WILL MAKE CITY A DESERT; CHICAGO SALOON MEN PROMISE IMPLICIT OBEDIENCE SUNDAY.

CHICAGO, Oct. 7.—The police will have little to do next Sunday in enforcing the saloon-closing order, according to word which came from the liquor interests today.

Word went forth to the 7152 saloonkeepers to "clap the lid on tight" to give Chicagoans a real taste of what the order means.

Plans were begun for a demonstration of the so-called personal-liberty element, probably a parade, Sunday. A parade of the drys, long prepared for, will be held Saturday.

Suppose it should transpire that the people of Chicago, like those over in Russia, should decide in favor of "Chicago dry" every day in the week, then what would happen?

A "TRICK OF THE TRADE."

We clip the following from the *Ohio Farmer:*

A circular is being distributed over the state proposing that pie, cake, tobacco, and picture shows be prohibited. It is not signed, and the "drys" complain that it is the work of the "wets," and that its object is to incite opposition to the pending prohibition movement, its authors expecting that it will be inferred that the "drys" have launched the circular.

The above reminds us of the old fable of the ass that got hold of a lion's skin, and succeeded in frightening everybody for quite a time until somebody noticed the ears of the ass sticking up where the lion's ears should have been, thus showing that the foolish animal was but an ass, no matter what his outward appearance.

SENDING BOOZE TO THE HEATHEN ON THE SAME VESSEL THAT CARRIES MISSIONARIES, ETC.

On page 822 of our issue for Oct. 1 we gave some facts in regard to liquors sent to Africa. Here is something from our friend Minnie J. Ellet, clipped from the *Ohio Messenger:*

I rarely neglect writing down at once anything I hear, or clipping or copying anything I read that shows (or proves) that for every soul we lead to Christ we *make ten drunkards.*

The new Chinese republic, careful to label all poisons, labels the drink we send "The Jesus Poison." American consuls in more than one country forbid the missionaries organizing temperance societies because it equals "boycotting a great American industry."

In spite of protest from thousands of Christians, Elders Wilson and Bryan sent a Chicago brewer to represent us in the Balkan states, and the Cleveland *Plain Dealer* is responsible for the statement that he brags to royalty that the shirt he wears cost twelve dollars. Doubtless the poor fellows who paid for the shirt go shirtless.

All over China agents of distillers, brewers, and cigaret-makers are giving away liberal samples of their goods—creating *appetite.*

I've misplaced an article on "Christian America's Contribution to Darkest Africa." But the contribution of *barrels* in one week runs up in the seventh figure. In three months we unloaded 250 *tons* at one *dry* port. God forgive America's greed, if he can, but *woe* is pronounced against her.

When coffee was boosted in price, Brazilian planters wondered why Americans should kick when they buy of us beer enough to flood the Amazon River, and it costs them 5 cts. per glass. They think their coffee as valuable in dollars and life-giving properties.

Japanese drink our rum, stagger the streets, or roll in the gutters, saying, "We are Christian."

When America took possession of the Philippines there were fewer than 20 saloons in Manilla. Before 12 months had rolled by there were over 300.

GOD'S KINGDOM COMING.

We clip the following from *Farming Business* for Sept. 11:

A PROFITABLE SLUMP.

The Commissioner of Internal Revenue has recently issued a preliminary report for the fiscal year ended June 30, which contains much that is good

news. The national income from the sale of distilled and fermented liquors fell off very materially during the past year. The loss of revenue to the government may seem an unfortunate thing to some people. But the thing which it indicates will be good news of far more import to others.

The ordinary revenue collections on distilled spirits fell off practically seventeen million dollars during the twelve months. During the same time the collections of revenues on fermented liquors was approximately six million five hundred thousand dollars less than the year before. This means that the national consumption of distilled spirits for the year was fifteen million gallons less than for the year before—a decrease of one-eighth. This means that as a nation we consumed only seven-eighths as much spirituous liquors last year as we did the year before.

Would it not be a good thing if we were to keep up that decrease? If we did, at the end of another seven years we would quit consuming spirituous liquors, the greatest destroyer of wealth and personal efficiency—and even of human life—which operates in the world. Some people claim that General Sherman did not say that war was hell; but somebody started the statement, and it is a very true one, as we are learning this year. But all the wars fought in the entire world during the past century have not killed as many human lives or destroyed as much property and wealth as has the use of spirituous liquors during the same length of time. Let us keep on marking off that same internal revenue deficit each year, adding to the national and personal wealth to a far greater degree.

We also clip the following from *Farming Business:*

THE RESULTS OF PROHIBITION.

Prohibition gets results; it actually does prohibit. The best sort of proof a skeptical man could ask for was furnished the other day in the office of the board of tax equalization of Indianapolis. The representatives of the Capital City Brewing Company of that city went before the board and asked that their assessment be materially reduced. In support of their request they claimed that the spread of prohibition during the past few years has greatly reduced the value of brewing stock. The receiver for the company said that he received letters every day from breweries begging him to buy their stock and equipment at 10 cents on the dollar of their normal cost or value.

SOMETHING FURTHER FROM GOVERNOR CAPPER, OF KANSAS.

We clip the following from the *New Republic:*

The state convention of the W. C. T. U. which was held here this year gave Governor Capper the opportunity to say a few good things about prohibition in Kansas that will be heard for miles around outside the boundaries of Kansas.

The Governor has heard from various sources that the liquor interests are busy telling the people who will listen to them that conditions in Kansas under the dry *régime* are not what they ought to be. That the people are unhappy, taxes are higher, and that the *wheat* does not grow so fast since the saloons were thrown out of the state.

Governor Capper said:

"Kansas, under the enforcement of her prohibitory law, has made such marvelous advancement in every avenue of progress and well-being that the powerfully entrenched liquor interests, alarmed lest all the states, or the nation, follow its example, have made Kansas the target of their various publicity bureaus. They have covered the entire United States with pamphlets and reports in which statistics are adroitly massed, manufactured, and distorted to prove that Kansas actually is damaged by prohibition, and that there can be no real prosperity, no actual progress without the saloon. One side of their argument is as convincing as the other; but the plausible and apparently conclusive and authoritative array of their alleged statistics puzzles many persons who realize at the same time that they cannot be true or entirely true.

NATIONAL PROHIBITION COMING.

"National prohibition is certain to win. Its complete victory may not come as early as many of us are hoping it will come. But no matter about that. You should keep on fighting. The enemy is strong and resourceful. In a meeting of the National Anti-saloon League two years ago $30,000, seemingly a generous sum, was subscribed in 30 minutes to fight the liquor power. But the liquor power raised *four million dollars* with which to fight prohibition. This should not discourage us. Neither four million dollars nor four hundred million dollars can stop the onward march of prohibition in this country."

THE METHODIST CHURCH AND THE SALOON TRAFFIC.

The following, also, came to me without any indication as to what paper it was taken from:

Federal action is the only way to curb the liquor traffic, declared Dr. Clarence True Wilson, Kansas man, general secretary of the Temperance Society of the Methodist Church, at the temperance meeting of the conference sessions Saturday night.

"We must have federal prohibition imbedded in the constitution," he said. "Because the alcohol traffic is defended by inter-state commerce and operates under federal protection. The national power that stopped dueling, polygamy, piracy on the high seas, cannibalism on distant islands, unlocked the sealed gates of Japan, uprooted human slavery, drove the lotteries from Louisiana, and their advertisements from the mails, must now be invoked to defend the American home.

Dr. Wilson scored the Home Rule movement, declaring the people of the county and state had a right to determine moral conditions in the cities, and that "the pure stream of country morals and township sentiment was needed to flush out the cesspools of the cities."

The speaker had no patience with the suggestion that the liquor men be compensated for lost property rights.

"No man has a natural, inherent or constitutional right to debauch the American people," he said. He added that there was not money enough invested in the liquor business to pay a millionth part of the bill it owes civilization.

"It is time to serve notice," he concluded, "that no man can be mayor of our city, sheriff of our county, attorney for our district, represent our ward in council, go for us to the state legislature, speak for us in congress, answer for our state in the senate, or get a Christian man's vote for president, if he stands committed to the liquor interests."

Please notice the concluding sentence. If we continue to put men into office, or let them get into office, who are in sympathy with the liquor traffic, how are we going to have law-enforcement?

DON'T BE ENTRAPPED.

Perhaps there is one point the great wide world does not sufficiently recognize. It is this: While the liquor party are ready at

any minute to resort to any kind of trickery or falsehood in order that they may prevent their traffic from being put down and out, the temperance people, representing our churches and schools, and the highest type of truthfulness and honesty in our land, are obviously obliged to be aboveboard. *We* are striving to *benefit humanity,* while our opponents care for nothing but their own selfish money interests; therefore it behooves us to be wise as serpents while considering the things before us as people of Ohio. I was reminded of this by reading the following, which I clip from *Successful Farming* for October:

OHIO VOTERS, LOOK OUT!

Beware how you vote on constitutional amendments. Read them carefully and learn what they mean. For instance, the Constitutional Stability League (smooth name!) proposes that the people vote in November on this amendment:

"No amendment of the constitution shall be submitted to the electors which involves any proposal *or part of any proposal* which since September 4th, 1912, shall have been rejected more than once by the electors, unless six years shall have elapsed since the last rejection."

Do you see the "joker" in that? It is "or part of any proposal." Suppose woman suffrage, prohibition, tax reform, or any other good thing has been twice rejected by the voters. Suppose the enemies of these good things twice propose an amendment which *in part* apparently considers one of these good reforms, but so worded that the voters purposely defeat it, don't you see that the amendment desired in its *good* form cannot be submitted again for six years because it contains "a part of" a "proposal" that was twice rejected.

This is a trick of the interests that do not want prohibition or woman suffrage in Ohio. You ought to know what to do to any proposed amendment like that of the Constitutional Stability League.

"THE INTERCOLLEGIATE STATESMAN."

The above is the title of a magazine now in its twelfth year. It is published by the Intercollegiate Prohibition Association, Room 303, 189 West Madison Ave., Chicago. Its object is to wake up the students of our colleges to the importance of voting out the liquor-traffic. One might readily suppose that college students would be in *advance* in making our states and nation dry; but instead of that I greatly fear it is true that they are lagging behind in the way of temperance. A few years ago there was considerable said in the papers about banquets held by students of the great eastern colleges—I am not sure whether it was Yale, Harvard, or Princeton. We read in the papers of their banquet and of the quantities of beer they drank; but I had supposed these things were matters of the past. During a very pleasant talk with Mr. Mark R. Shaw, secretary of the association mentioned above, he informed me that such things are still going on; and not only students but some well-known professors are defending not only the banquets but the beer. If this is true, may God have mercy on us as a people. Mr. Shaw, as an illustration, asked me how I could explain the fact that so many lawyers and doctors are *drinking* men. He said they acquired their drinking habits in the college where they graduated. Just thing of it, friends—fathers and mothers depriving themselves almost of the necessities of life in order to have their boys go to some celebrated college to graduate, and find out afterward that such college taught more iniquity than it did righteousness.

Since the above was in type we find the following in the *Plain Dealer:*

"COLLEGIANS, VOTE DRY." PROHIBITION LEAGUE OFFICER ADDRESSES OBERLIN STUDENTS.

OBERLIN, O., Oct. 6.—"You Ohio college students are going to help us win the state dry this fall," was the enthusiastic statement of David T. Shaw, state secretary of the National Prohibition League, in his address to the students of Oberlin this morning.

He added if Ohio could be aroused to the pitch of enthusiasm attained before some of the big football games of the year a victory for the dry forces would be assured.

ALCOHOL FOR AMMUNITION, TO RUN AUTOMOBILES, ETC.

Even if our good friends of the Cleveland *Plain Dealer* did not show much enthusiasm in announcing that South Carolina had voted dry (more than two to one), it rejoices our heart to find the following at the close of one of their editorials:

Perhaps after all the states have gone dry, and alcohol is no longer used to befuddle the intellect, we shall find that it makes fine ammunition to repel invaders. Or if war shall be abolished simultaneously with drunkenness, the arts of civilization may still be served by this hitherto destructive substance, and we shall know it only as a power to run machines. Alcohol's evil reputation may after all be like the badness of small boys—merely a case of energy wrongly directed.

DRUGSTORES AND WHISKY, ETC.; LONG LIVE DR. WILEY.

We clip the following from the Cleveland *Plain Dealer:*

WILEY REFUSED DRUG-STORE LIQUOR RULE; TRIES TO GET ORDER TO PROHIBIT DEALERS SELLING WHISKY WITHOUT LICENSE.

WASHINGTON, Oct. 6.—Efforts made by Dr. Harvey W. Wiley to get a ruling from federal officials that neither whisky nor brandy may be sold in drugstores after the new United States pharmacopeia goes into effect, today proved unsuccessful.

While the pharmacopeia is recognized as the official list of drugs for the United States, Commissioner of Internal Revenue W. H. Osborn holds that the dropping of whisky and brandy from the list of medicines does not affect the situation with reference to the sales of those intoxicants in drugstores.

At least, the federal government has no interest in that question.

After Dr. Wiley, who is president of the United States Pharmacopeial Convention, read the ruling of the commissioner, he said:

"I am still of the belief that, after the new pharmacopeia becomes effective, which will be as soon as the new book is issued some time this winter, no drugstore will have the right to sell either whisky or brandy unless a saloonkeeper's license is taken out and the druggist complies with all the local regulations of the saloonkeeper."

PROHIBITION IN FACTORIES,

We take the two clippings below from *Good Health*, Battle Creek, Mich.:

INCREASED EFFICIENCY IN STEEL WORKERS WHEN SALOONS GO.

Due to the removal of saloons from the city of Coatesville, Pa., accidents in the plant of one of the city's largest steel companies have decreased to the extent of fifty-four per cent in six months.

STOVE EMPLOYEES FORBIDDEN DRINK AT WORK.

The Baker Stove Company, of Belleville, Ill., has issued an order which makes its plant "dry." Hereafter none of its four hundred employees will be allowed to drink intoxicants of any kind while at work. The factory managers are encouraging the men to drink milk instead of beer, and are providing ice with which to keep the milk cool. "We are not posing as prohibitionists," says Mr. George Baker, superintendent of the Baker Stove Company, "but we believe we can increase the efficiency of our men and reduce the number of accidents in the shop if the men are not allowed to drink when at work."

GOOD FOR THE ILLINOIS STEEL COMPANY.

The clipping below was sent us by a friend:

"DID BOOZE EVER DO YOU ANY GOOD?"

"This question," says Dr. W. A. Evans in his "How to Keep Well" department of the Chicago *Tribune*, "is not from a long-haired or even a prohibition orator; it is part of an electric sign displayed over the gates of the Illinois Steel Company.

"It is easy to prove," continues the doctor, "that alcohol harms the ordinary cells of the body. Alcohol is a drug. Alcohol addiction is a drug habit. The abuse of this drug will go the way that drug abuse of every kind is destined to go."

When all the great factories of our land are ready to follow the Illinois Steel Co., booze will have to go.

TEMPERANCE MOTTOES USED AT THE WORLD'S TEMPERANCE SUNDAY AT THE THIRD PRESBYTERIAN CHURCH, TRENTON, N. J.

WHY SALOONS MUST GO:

Because it is the mother of all mischief.

Because it is the chief lawbreaker in the country.

Because it is the enemy of the church and good citizenship.

WHEN?

When we cease to sacrifice our children for revenue.

When Christian men become fully aroused to this evil.

When men vote as they pray.

BY WHOM?

By the prayers and labors of mothers.

By the voters who are determined to care for their sons.

By the officers who are true to their oath of office.

Two hogsheads of beer are equal to one loaf of bread in food value.

Seven millions killed in battle since 500 B. C.; that many killed every year traceable to King Alcohol.

A Titanic of souls lost every day by drink in America.

The saloon will go when Christian men say so.

The mottoes used were taken from a program prepared by Mrs. Stella B. Irvine, 115 Walnut Street, Riverside, Cal.

WHISKY AND BRANDY NOT A MEDICINE; SEE P. 735, SEPT. 1.

We clip the following from the *Pennsylvania Farmer*. After you have read it, see if you cannot join with me in uttering a hearty amen.

The medicinal value of liquor is denied by our most competent medical authorities unaffected by popular opinion. Its value as a revenue-raiser is demonstrated to be a negative quantity. Its only defense is that advanced by the so-called "personal liberty" advocates. To them we would recommend the following plan suggested by a writer in a current magazine. His advice is to married men who cannot do without their drinks. He says, start a saloon in your own home. Be the only customer. You will have no license to pay. Go to your wife and give her two dollars to buy a gallon of whisky—and remember there are sixty-nine drinks in the one gallon. Buy your drinks from no one but your wife, and pay her the regular 15 cents per drink. By the time the first gallon is gone she will have $8.35 to put in the bank and $2 to start business again. Should you live ten years, and continue to buy booze from her, and then die with snakes in your boots, she will have money enough to bury you decently, educate your children, buy a house and lot, marry a decent man, and quit thinking about you.

We clip the following, also, from the Pennsylvania *Farmer*. If it does not voice the sentiment of all Christian people, should it not do so? Shall the art of killing people be a part of the education of our youth?

MAKING SOLDIERS OF CHILDREN.

It will be remembered that about twenty years ago there was some agitation in favor of introducing military training into the public schools and other institutions of learning. The idea died "a-bornin'," as it deserved to. It is being revived by some pseudo-patriotic people at the present time. It seems that whenever the air is impregnated with the war spirit some people lose their native good sense. But whatever may be the merits or demerits of the campaign for "preparedness," the proposition to give military training to school children is, in our opinion, foolishness in the extreme. The plea for it on the ground of its value as athletics is far-fetched, as military training is not the kind needed, nor does it serve the purpose of development in the growing youth. More than this, however, when it is stated in plain honest words, military training is for the purpose of producing efficiency in killing and destroying. To be most effective, the spirit as well as physical precision and endurance is necesssary. Who will dare put the desire or even the willingness to kill in the heart of a child? Have we forgotten what the great Teacher said—"It were better that a millstone were hanged about his neck and he were drowned in the depths of the sea than that he offend one of these little ones"? Let us hear no more of this talk.

SOMETHING ABOUT THE STEERING-GEAR.

If prohibition should go through, and should prove actually to prohibit, we imagine there would not be anywhere near so many automobile accidents due to the fact that something happened to "the steering-gear."—*Ohio State Journal.*

POULTRY DEPARTMENT

Mankind neither knows of nor enjoys two greater food blessings than fresh eggs and sweet milk.—American Poultry World.

SPINELESS-CACTUS FRUIT; ALSO SPINELESS-CACTUS SLABS AS POULTRY FOOD.

Our good friend G. B. Woodberry, of Glendale, Cal., sends us two fruits, each about the size of a goose egg. I pronounced the quality about like that of a good sweet apple, and, in fact, they are rather too sweet for my taste. I suppose there are other varieties that are more tart; for instance, the fruit of the wild cactus found in Florida is, some of it, quite tart. The sweet fruit might exactly suit some people; and in regard to feeding poultry on cactus leaves or slabs, friend Woodberry sends us a clipping from the Los Angeles *Times*. This gives an account of feeding three different cages of poultry on cactus alone—no water. You see, the idea is, that the cactus supplies sufficient water of itself. You may remember that we have mentioned before that cows and pigs would get along very well without water if they have plenty of cactus. I believe the poultry in the three experiments were confined. Four pullets laid two eggs a day when fed on cactus (12¾ lbs.), and nothing else, for five days. Three sitting hens in store windows, fed only cactus (10¼ lbs.), no water, commenced laying, and gained half a pound in weight. Three pullets in a similar store window began laying, and gained 1¼ lbs. Amount of cactus consumed, 14 lbs. The account of the experiment ends with the following:

Conclusions.—Spineless forage cactus, fed to three sets of chickens for over a week, showed that those laying continued to lay, and those which had been sitting commenced to lay and gained in weight.

While the above was on only a small scale, it demonstrates that poultry can live and do tolerably well on cactus alone and nothing else. Very likely, if the experiment had been continued for a longer period the above might not be as favorable. But if it actually transpires that I can grow cactus in my garden to feed chickens, so as to get eggs without being obliged to purchase any grain *at all*, it would be a big achievement. If cactus alone will enable the chickens to lay eggs, and increase in weight in confinement, what would it do if the chickens had a range of two or three acres as ours have? Today is Oct. 2, and I am looking forward to the time when I can go back to my Florida garden to raise cactus for my chickens.

SOREHEAD AMONG CHICKENS.

We clip the following from the *Florida Grower:*

I wish to warn the *Grower* family of readers to the danger of "sorehead," and the necessity for preventive measures if they wish to avoid it. Now is the time to commence preventive measures. It will be too late after the trouble is upon you. Begin in July, and feed throughout the summer months the following:

One tablespoonful of sulphur to every twelve or fifteen fowls, mixed with the mash feed once a week. Alternate with epsom salts, same quantity for same number of birds, preferably mixed with a wet mash, so as to insure the birds getting it. It may be given in the drinking-water, but there is always danger of some of the birds refusing it, which is avoided when given in the wet mash. Giving the sulphur, say on Tuesdays and the epsom salts on Fridays, will save untold worry and trouble later on. The late-hatched chicks are the most susceptible to sorehead. By no means overlook them. You will save yourselves a world of trouble, as this disease is especially prevalent here in late summer and early fall; but I have yet to hear of a single case where this treatment was given in advance. Better be safe than sorry.

As a rule I am opposed to giving drugs to chickens; but epsom salts I find recommended by so many of the poultry journals I am forced to believe there is something in it. I suppose the explanation would be that sorehead is caused or at least is predisposed by indigestion; and the epsom salts would prove a sort of physic to cleanse the digestive apparatus. Sulphur is also a recognized anti-fungus. Just consider the results that are obtained by the lime-sulphur spraying used on fruits and vegetables.

COTTON-SEED MEAL FOR POULTRY, ETC.

In testing different fertilizers in our Florida garden we used quite a little cotton-seed meal with good results; and once or twice the chickens got at it and seemed to eat it with avidity. Wesley, however, assured me it would *kill* chickens. He said his former employer lost quite a lot of them by giving them cotton-seed meal; and I have heard from others down in Florida that cotton-seed meal would kill chickens. Later on I noticed that the matter was being discussed in the Florida papers. Some of our experiment stations have taken the matter up; but, as nearly as I can make out, the general conclusion seems to be that cotton-seed meal is a safe and profitable poultry food providing it is mixed with bran, corn meal, or middlings so that it will give not over one-fourth cotton-seed meal in proportion to the other feed. For small chickens I think one-tenth of cotton-seed meal has been recommended.

And, furthermore, as a matter of exceeding great importance, one periodical declares it will take the place of animal food such as ground bone, beef scrap, etc. I am going to make a test of it when I get back to our Florida home. The matter was just brought to mind by the following from the *New South Baker,* sent me by our old friend Henry Borchers, of Laredo, Texas. If oil is a recognized and wholesome article of food made from cotton-seed meal, I do not know why we should not use the meal also for making bread.

COTTON-SEED MEAL IN BREAD.

FORT WORTH, TEXAS.—The latest claim of King Cotton for favor at the hands of his own subjects of the South by home consumption is cotton-seed flour for pastry and bread, which is more properly known as "Allison flour."

G. A. Baumgarten, proprietor of the Schulenburg oil-mills, manufacturer of the flour, went to Houston with a supply of his product and turned it over to the Stude Baking Company for manufacture into bread. Forty loaves were turned out and presented to friends complimentary by Mr. Baumgarten.

The bread contained 20 per cent of Allison flour, made from the choicest upland cotton seed, and 80 per cent wheat flour. The bread was a rich light brown, with a delicious nutty flavor, and, according to Dr. G. S. Fraps, state chemist at College Station, contained as much nutriment as beef or eggs, but 21 times cheaper than eggs, and 15 times cheaper than beef.

P. S. Tilson, of the Houston laboratories, analyzed a sample of the flour and stated that it contained 64.53 protein and fat. Meats contain from 15 to 23 per cent protein, averaging about 17. Patent wheat flour has but 11.73. Cotton-seed flour has been mixed as high as 30 per cent with wheat flour; but 20 per cent is deemed sufficient, and produces the best results, at the same time containing all nutritive requirements.

CHICKENS EATING CROOKED NAILS AND BITS OF WIRE.

I am enclosing a piece of wire, as it appears to be taken from the gizzard of a chicken I dressed. It was sticking clear through the gizzard, and was completely encysted, thus protecting other organs from it. I send it because some time ago A. I. Root in his poultry notes questioned whether chickens would swallow such things. I have found needles and pins in chickens' gizzards, and I think they pick them up and swallow them in their wild hurry to eat all they can, before the others get it.

I now have two chicks that have always been fed alone, and all they can eat; but put them in a barrel of corn chop and they will crowd each other and eat just as fast as they can, as if they thought there was not enough for both.

Doniphan, Mo. MRS. J. W. BEAUCHAMP.

I think, my good friend, you have given us the key to this matter. When chickens have plenty of proper food they will be very unlikely to swallow things of this kind that may do them harm; and your letter explains why our chickens down in Florida pay no attention to crooked nails and rusty pieces of wire, and tacks, for our chickens, big and little, always have food where they can get it when they want it. I have explained before that we put all of our food in galvanized tubs set up on a post where the chickens all know just where to find it whenever they are hungry enough to jump up into the tub. When the chickens are small they have smaller tubs lower down; but just as quick as possible we teach the chickens to hop up high enough so that Florida rats cannot follow them. When they are quite small we are obliged to give them what they will eat up clean, and carefully see that they never get so *hungry* as to swallow rusty nails. Your suggestion about making chickens "greedy" would be a good plan to follow where you want to fatten up young roosters as fast as possible.

THE WET SEASON OF 1915.

Today is October 6, and rain is still coming just a little oftener than we like. We have used the sprinkling system only once, and even then it was a mistake. A shower followed us soon after, so that the sprinkling did harm rather than good. The following clipping from the *Ohio Farmer* not only describes the looks of our Ohio garden, but it portrays also the situation of many other gardens pretty much all over the North. Read the following:

My garden is so full of weeds I can hardly find my "truck," and the "truck" is so nearly drowned out that it isn't worth hunting for. My peas are a big rotten mass of vines, my roots all grow to tops, my tomatoes refuse to ripen, my sweet corn won't ear, and my vines won't set fruit.

This fall or next spring I shall fill all vacancies in my young orchard; but in the meantime I've lost the original price and a year's growth on the trees. I shall set another strawberry patch, of course, but I've lost my next summer's crop. I don't know whether I'll raise much more "truck" or not; two months of rain is slightly dampening to my enthusiam.

Obviously, I should have raised ducks, water cress, and pond lilies exclusively; but hens seem to stand the deluge as well as anything I am trying. They have dry quarters to stay in at their own discretion; and perhaps if my vegetables could go in out of the rain when their feet get too wet they might thrive better. The production of winter eggs furnished our principal income last year, and the prospect looks much better for eggs this winter so I'm in hopes we won't "sink" entirely; but this is surely a season when a city man would better stick to his job if he has one. He might start a summer resort—he could find a lake and run a boat anywhere—but a dry season next year would be as injurious to his industry as the present one has been to ours.—E. A., Chautauqua Co., N. Y.

THE BOYS' CORN CLUBS.

The average yield of corn in Ohio is 33 bushels. The boys showed that 140 bushels could be grown on one acre. Small youngsters demonstrated that eighty and ninety bushels were easy. Ohio owes a duty to the boys who are willing to make these tests.—*Cleveland Plain Dealer.*

Agriculture
College

Gleanings in Bee Culture



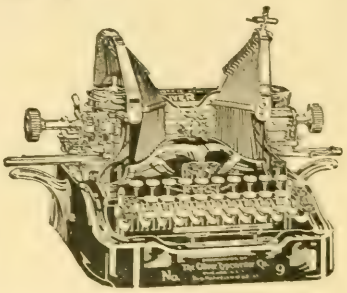
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Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does

If you are using an Oliver, it naturally follows that you want the finest model.

17 CENTS A DAY! Remember this brand new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—plus the Optional Duplex Shift, Selective Color Attachment, and all other new new-day features.

Yet we have decided to sell it to everyone everywhere on our famous payment plan —17 cents a day! Now every user can easily afford to have the world's crack visible writer. with the famous PRINTYPE, that writes like print, included FREE if desired.

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The Oliver Typewriter Co., Cleveland, Ohio

946 Prospect Avenue

Gleanings in Bee Culture

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EDITORIALS

Who Invented the Quadruple Winter Case?

MR. JACOB ALPAUGH, of Stratford, Ontario, Canada, seeing what we had to say on page 697, Sept. 1st issue, about the origin of the new or old method of wintering bees, four in a case, and that we did not know who invented it, writes: "I invented it, and have wintered all my bees in that way for the last 25 years."

Mr. Alpaugh is an all-around genius. He has invented a good many things, and it would not be at all surprising if he were the first to devise this winter-case system of wintering, although the principle of a tenement hive, four colonies to the hive, was used by us 35 years ago.

A Celebrated Bee-rock near Pasadena, California

WHILE in California last winter we were taken on a number of automobile tours among the beekeepers. On one occasion Mr. and Mrs. F. R. Buchanan, of Glendale, Cal., picked us up, together with Mr. and Mrs. Frank McNay, of Pasadena, Cal., and motored over to Griffith's Park, located about six miles from Los Angeles, and about two miles from Lindale. This park contains 3000 acres of land, of mountain scenery, of beautiful drives, and zoological gardens: but what is of more interest to beekeepers is that it has the largest bee-rock, possibly, in the world, and several beetrees. But reference to those will be made at another time.

Mr. Buchanan was very anxious that we should see this rock that is located on an elevation of land that makes it stand out where it commands a view of all the country round about.

No matter at what angle the observer may be located, he will be able to see in the rock all kinds of fantastic shapes—faces of men and animals. The rock has a great many cavities in it, and the arrangement of these cavities in some cases has a sinister look. In these cavities are located colonies of bees, some of which are probably enormous in size. Apparently no one has ever explored this rock or made any attempt to take the honey, as it is very difficult of access; but bees can be seen flying in at the various apertures in the rock.

We approached it as close as we could, and with our large kodak took a view of it. The result is shown on the front cover page of this issue.

Mr. Buchanan is an old traveling salesman. He made enough money so he has comfortably retired, and he and Mr. McNay are two beekeepers who keep bees for pleasure as well as for profit. At one time Mr. McNay was one of the most extensive beekeepers in Wisconsin. He was once also one of the largest honey-producers in California; but of late years he has taken life easy, as he says, and now plays with his carpenter tools and a single colony of bees. Mr. Buchanan has some thirty or forty colonies: and if there ever was a bee enthusiast in the Golden State, Mr. Buchanan is the man.

In our next issue we shall give a picture of the two men dangerously near the entrance of a beetree.

A List of Government Publications on Bees

THE following letter from Dr. E. F. Phillips will explain itself:

Mr. E. R. Root —You will find enclosed a list of the publications of interest to beekeepers that are for sale by the Superintendent of Documents, Government Printing-office, Washington, D. C. This list will be of interest to beekeepers who do not know just what is available. Copies may be obtained on request to the Superintendent of Documents.

E. F. PHILLIPS,
In Charge Bee Culture Investigations.

Washington, D. C., Oct. 18.

The list of bulletins referred to is as follows:

ANATOMY of the honeybee. 1910. 162 pages, illus. (Entomology Bureau. Technical Series 18.) Paper, 20c.

APICULTURE.

Report of meeting of inspectors of apiaries, San Antonio, Tex., Nov. 12, 1906. 79 pages, 1 plate. Entomology Bulletin 70. Paper, 15c.

Present status of investigation of bee diseases.
of bee-disease inspection in Wisconsin.
Status of apiculture in United States. 1909. Pages 59 to 80. (Entomology Bulletin 75, pt. 6.) Paper, 5c.
tin 447.) Paper, 5c.

Bee diseases in Massachusetts. 1908. Pages 23 to 32, map. (Entomology Bulletin 75, pt. 3.) Paper, 5c.
Destruction of germs of infectious bee diseases by heating. 1914. 8 pages. (Agriculture Bulletin 92.) Paper, 5c.
Historical notes on causes of bee diseases. 1912. 96 pages. (Entomology Bulletin 98.) Paper,
Occurrence of bee diseases in United States, preliminary report. 1911. 25 pages. (Entomology Circular 138.) Paper, 5c.
Relation of etiology [or] cause of bee diseases to treatment. 1908. Pages 33 to 42. (Entomology Circular 138.) Paper, 5c.
Treatment of bee diseases. 1911. 22 pages, illus. (Farmers' Bulletin 442.) Paper, 5c.

FOUL BROOD. State and Territorial laws relative to
Entomology Bulletin 61.) Paper, 5c.

1900. Pages 43 to 58, illus. map. (Entomology Bulletin 75, pt. 5.) Paper, 15c.

HONEY.
Chemical analysis and composition of imported
21 pages. (Chemistry Bulletin 154.) Paper, 5c.
Comb honey. 1912. 47 pages, illus. (Farmers' Bulletin 503.) Paper, 5c.
Hawaiian honeys. 1908. 21 pages, illus. (Hawaii Agricultural Experiment Station Bulletin 17.) Paper, 5c.
Honey and its uses in the home. 1915. 26 pages, illus. (Farmers' Bulletin 653.) Paper, 5c.
Production and care of extracted honey; Methods of honey-testing for beekeepers. 1907. Pages 1 to 18. (Entomology Bulletin 75, pt. 1.) Paper, 5c.

,1909. Pages 81 to 109, illus. (Entomology Bulletin 75, pt. 7.) Paper, 5c.

POLLEN. Behavior of honeybee in pollen-collecting.
121.) Paper, 5c.

PORTO RICAN BEEKEEPING. 1914. 24 pages, illus. (Porto Rico Agricultural Experiment Station Bulletin 15.) Paper, 5c.

QUEEN BEES. Rearing of queen-bees. 1905. 32 pages, illus. (Entomology Bulletin 55.) Paper, 5c.
tomology Circular 169.) Paper, 5c.

Temperature of bee colony. 1914. 29 pages, illus. (Agriculture Bulletin 96.) Paper 5c.
A study of the effect of temperature on bees.
Temperature of honeybee cluster in winter. 1914. 16 pages, illus. (Agriculture Bulletin 93.) Paper, 5c.
This bulletin presents studies of bees as affected by temperature conditions during winter, and is of special interest to beekeepers in the North.

WAX-MOTHS and American foul brood. 1907. Pages 19 to 22, illus. (Entomology Bulletin 75, pt. 2.) Paper, 5c.
lar 161.) Paper, 5c.

The Fundamental Principles of Good Wintering Outdoors

FARMERS' BULLETIN No. 695, entitled "Outdoor Wintering for Bees," by Dr. E. F. Phillips and G. F. Demuth, has just been sent out by the United States Department of Agriculture. We have gone over it carefully, and only regret that it could not have been issued in September. As it is, we hasten to place some of the material in it before our readers.

The authors estimate that the beekeepers of the United States lose at least a tenth of their colonies every winter; and that the losses *may* reach a half and sometimes more in some sections. These losses, they believe, could be reduced to less than one per cent.

We hope that they are right; but it is our opinion, based on an observation of thirty years, that, even if their directions are carefully followed, there will be some winters in some localities when the losses will be heavy. However, we are frank to admit that a large percentage of the losses is due to ignorance of the very principles set forth in this bulletin, which principles we believe are correct. We therefore recommend every beekeeper to send at once, either to Dr. E. F. Phillips, Department of Agriculture, Washington, D. C., or his congressman for a copy of Farmers' Bulletin No. 695.

CAUSES OF WINTER LOSSES.

In reference to the causes of winter losses this statement is made:

THE CAUSES OF WINTER LOSS.

The causes of the death of individual bees or of a colony of bees in winter, barring unusual accidents, are only two in number: (1) Inadequate stores and (2) excessive heat production. The numerous factors usually given in the literature on the subject as entirely distinct fall into these two classes, except for some that are usually given which the authors do not believe to be operative.

Doubtless some of the old veterans will take exceptions to this; but if they will study the matter carefully they will see that they are the fundamental causes. Every one will agree that the stores should be adequate in quality and quantity. There can be no controversy about this; but when all the other causes are summed up under the three words "excessive heat production" there will be more or less dissent. Let us see.

Some will say that it is not "excessive heat," but cold that kills the bees; and this cold may be due to continuous severely cold weather or to a lack of packing or insulation. The authors showed last winter by a series of experiments that cold causes excessive heat generation. The effort of the cluster to generate its own heat, which it can do, causes increased activity; activity causes a heavy consumption of stores, and this brings on dysentery. It is seldom that a *good* colony freezes to death by sheer cold. Death is, 99 times out of 100, caused by dysentery as a result of increased activ-

ity. Examination of the hives where bees have died, in 99 cases out of 100, if not 999 out of 1000, shows hives to be soiled by liquid feces.

HEAT GENERATION BY A CLUSTER OF BEES.

While the authors do not make this statement, we believe it to be in harmony with their teachings. In order that the reader may better understand the subject of heat generation, if he has not already read page 789 of our volume for last year, and pages 49 and 93 of this year, we quote all that is said in the bulletin on this subject.

[illegible] When the temperature of the air [illegible] hive) falls to 57° F. or lower, they form a cluster, [illegible] muscular activity, while those in the outer portion serve as insulators by crowding close together, usually with their heads toward the center of the cluster. The innermost portion rapidly acquires a temperature [illegible] about the bees before clustering was necessary, often [illegible] abnormal ones. The number of bees engaged in heat production increases as the outer temperature falls, and the insulating zone is consequently decreased in thickness, but becomes more compact. The entire cluster becomes smaller as the outer temperature falls.

If bees can be kept in an [illegible] the temperature of the air immediately surrounding them is 57° F. or slightly above, they are saved much unnecessary and unprofitable labor. To the theoretical objection that bees need exercise, it is necessary only to state that the authors have so wintered bees in a cellar as well as outdoors with wonderfully successful results. If bees are kept in a cellar under the best conditions the results are excellent; but it is not proposed to discuss this more complicated phase of the subject here. If wintered outside in a packing-case, with abundant insulation, any heat generated escapes slowly and the temperature of the air in the hive rarely falls below 55° F. If inadequately protected, the temperature of the hive can [illegible] much more heat. In single-walled hives it is common for the temperature of the air around the cluster to fall to freezing or lower, in which event the bees generate an excessive amount of heat, and perhaps die when they are no longer capable of the necessary muscular activity. The necessity of packing is thus made clear, and in any locality in which the outer temperature often falls to 40° F. or below it is desirable to protect bees to conserve their vitality. If the temperature should fall to 40° F. only a few times during the winter, this would not be serious enough to make insulation necessary. It is obvious, however, that winter protection is beneficial throughout practically the entire United States.

If the reader will peruse [illegible] very carefully he will be able better to understand why "excessive heat production" is the direct cause of the death of the bees. Of course it cannot be denied that cold is [illegible] not sold as already pointed out [illegible] usually kills the bees. If the beekeeper can keep the proper temperature in his hives by means of adequate protection, either outdoors or in cellars, there will be no excessive heat generation.

The authors very properly call attention to the importance of young bees in the fall. Old ones soon succumb to the work of heat generation as soon as cold weather comes on.

WEAK COLONIES AND WHY THEY DIE SOON.

Weak colonies cannot stand cold even relatively as well as the strong ones. "Since," say the authors, "the surface of a spherical cluster is proportionate to the square of the diameter, while the volume is proportionate to the cube of the diameter, it follows that a large colony cluster has a relatively smaller surface for radiation of heat than does a small one." It follows, therefore, that the weak cluster must do more work in proportion to its size to keep up the proper temperature, and hence it is plain why they are more inclined to have dysentery than the big colonies.

THE ACCUMULATION OF FECES.

On the question of the effects of the accumulation of feces, the authors say that "Dysentery causes death of bees in winter, so far as has been seen, solely by undue activity and excessive heat production. This detrimental effect is reduced by good stores, but obviously the proper method is to prevent an unnecessary accumulation of feces by preventing a heavy consumption of stores, chiefly by providing a sufficiently high surrounding temperature."

A good queen will better prepare a colony for winter by supplying it with a large force of young bees. She will also furnish plenty of brood in the spring provided the colony is strong enough and the stores good.

METHODS OF PACKING.

On the subject of the conservation of heat and the reduction of expenditure of energy, we feel that we must quote the authors in full; for this question of packing for outdoor wintering is often misunderstood. Here is what they say.

[illegible]

In outside wintering, the heat produced by the bees is conserved by the insulation of the cluster itself, and also by the insulation of the hive and packing. In the cellar there is less insulation near the cluster, but the cellar itself replaces the packing, and it is in reality simply an insulation. The insulation of the individual hive, of several hives packed together, or of bees in a cellar, serves solely to re- [illegible] obviously varies with the climate; and it is impossible to make definite general statements in a bulletin intend- [illegible]

general statement which can be made with safety: The majority of beekeepers do not give sufficient insulation, and no beekeeper ever gave a colony too much. For example, in the relatively mild climate of Washington, most beekeepers winter their bees in single-walled hives. The authors have used a large packing-case holding four hives, two facing east and two west, close together. This case was constructed so as to hold 3 inches of packing below, 5 inches on the ends, 6 inches on the sides, and 8 to 12 inches on top. Colonies wintered in such a case in Philadelphia in 1913-14, and in the apiary of the Bureau of Entomology at Drummond, Md., near Washington, in 1914-15, were in much better condition than colonies left unprotected, and cases of this general type are being constructed for the entire apiary at Drummond, except for such colonies as are used in other wintering experiments. The dimensions here stated should by no means be accepted as best for other localities, especially those further north, where the protection should be heavier, but in this particular packing-case the temperature of the air within the hive but outside the cluster usually stood at about 55° to 57° F., except for a reduction in temperature under one condition to be discussed on the next page. The aim of the beekeeper should be to keep the air about the bees at about 57° F., at which temperature there is no condensation of moisture within the hive, even on the inside of the cover, where it first appears. It might be inferred that if double the amount of packing had been used the temperature of the air about the bees would have been too high. This is not the case, for bees cease heat generation when the temperature reaches 57° F. (or even sooner when the surrounding temperature is rising), and the temperature will not exceed 57° F. unless that of the outer air remains higher than that for a considerable period.

Bees well protected and with good stores do not fly from the hive because of the warmth within when the outer air is too cold for them to do so safely. If bees fly at low temperatures (45° to 50° F.), it is an indication that they need a flight because of an accumulation of feces from poor wintering, and does not at all indicate too high an inside temperature because of too much packing. In conclusion, the beekeeper cannot apply too much insulating material to a hive.

It has been found that, even with abundant insulation, the temperature within the hive and outside the cluster is greatly reduced if the packing-case is exposed to wind. During the winter of 1914-15 a record was kept of wind velocity directly over a heavily packed case (with entrances ⅜ inch by 8 inches), and it was found that a wind with a velocity of 20 miles per hour directly on the case reduces the temperature within the hives practically to that observed in an unprotected hive. The beneficial effects of the insulation were therefore nullified, and the proper temperature within the hive was not regained for several days unless the outer temperature rose considerably. Beekeepers have long emphasized the importance of protection from wind, but the results observed were much more pronounced than was anticipated or than has ever been suspected by practical beekeepers. The ideal toward which the beekeeper should work is to keep his colonies during cold weather absolutely protected from wind, for here again the protection can not be too great. It is entirely erroneous to assume, as some have done, that such protection is not essential in well-packed hives.

There are several types of hives on the market in which the insulation is built in, to be retained throughout the year. There is no objection to the packing in the summer, except that such hives are not convenient for moving and in some other manipulations. Insulation in commercial double-walled hives is by means of air spaces or insulation, such as sawdust, chaff, broken cork, or shavings. These hives are better for outside wintering than single-walled hives in any part of the United States, but they do not provide adequate insulation at temperatures below about 40° F. Such hives must, of course, be protected from wind, or they are for the time being no better than single-walled hives.

WIND EXPOSURE AND WINDBREAKS.

We wish to call attention to what the authors say in the foregoing on the subject of wind exposure. On this point they are absolutely right. We would prefer to have colonies in single-walled hives with ample windbreaks rather than colonies in hives well packed exposed to a sweep of wind from a mile or more in all directions. We have proved it over and over again, that an apiary on top of a hill, with an exposure on one or more sides, if the winter is severe, will often suffer heavy winter losses when another yard of bees in the same vicinity, well protected from the wind, will come through winter in good condition. But that does not mean that single-walled hives screened from the wind are adequate protection. There should be *both* windbreaks as well as *packing*, or, as the authors put it, insulation.

In the matter of windbreaks, the authors agree with us that a solid windbreak, such as a tight board fence or a house, is not the equal of evergreens or other dense shrubbery.

In the way of insulating materials, the authors recommend sawdust, planer-shavings, or dry leaves, or whatever is handy. Sawdust should not be packed solid; but leaves should be crammed down tight.

BEES DO NOT SLEEP OR HIBERNATE.

The authors have done considerable work during the last two or three winters. They have shown that bees do not sleep, and that they do not hibernate. When the surrounding atmosphere goes below 57 Fahr., the cluster contracts and activity begins. If the protection is inadequate, the activity will be greater, resulting in more heat generation, a larger consumption of stores, and, finally, dysentery. A colony with dysentery in the month of February, or even in March, in the northern states, is as good as dead in our opinion unless there comes a warm day when bees can have a cleansing flight.

We believe that if the beekeepers of the country will follow the directions given in this bulletin, particularly if they fully grasp underlying principles, they will be able to eliminate a large part of their winter losses. But we doubt if the time will ever come when they can be reduced to one per cent, taking a series of winters covering a period of 25 years.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



P. C. CHADWICK asks, p. 837, whether one of the most important points to be considered in breeding is not disease-resistance. Yes, friend Chadwick, but that takes care of itself, for a colony that yields to disease is not likely to give a big yield. Surely, however, I would not breed from a diseased colony.

A CANADIAN inquirer asks whether I have given in "Fifty Years among the Bees" the way I prevent swarming. I think to no other problem in beekeeping have I given so much thought and effort as to that of prevention of swarming, and the results are given very fully in that book. It gives at least how I try to prevent it, although I do not always succeed.

THE presence of laying workers is not hard to recognize after their brood is sealed: but it is desirable to detect it sooner. The scattering of eggs and unsealed brood is an indication; yet I have known laying workers to fill worker comb just as regularly as the best queen could do it, with one egg in each cell. I *think* that is likely to be the case when there is little or no drone-comb present. Often the first indication of laying workers is the finding of more than one egg in a queen-cell; yet I have known a good queen to lay more than one egg in a queen-cell in a very few cases. Pollen in a queen-cell is a pretty certain sign—perhaps entirely certain. If you find eggs in drone-cells, especially if more than one egg in a cell, while plenty of worker-cells are unoccupied, you may be sure you have a case of laying workers. The cure? The best cure is to break up the colony.

G. M. DOOLITTLE insists on combs 1½ inches from center to center, p. 796. His good judgment and long experience entitle his views to great consideration. Yet it would cost heavily to depart from the almost universally established 1⅜, and we should all be willing to concede something for the sake of uniformity. Sometimes, however, the difference is so great that it pays to stand alone; and if Mr. Doolittle thinks so in this case, I respect him for the departure. [This question was argued quite thoroughly twenty years ago. There was a general belief that 1½ is better for store-comb, and 1¼ or 1⅜ for brood-comb. The closer the spacing, the more it discourages the rearing of drone brood. Some even went so far as to argue at the time that 1¼ spacing would shut out drone brood entirely. A great many in England favored 1¼ spacing. We know of no one, except for the production of extracted honey, who would space wider than 1½. We decided in our bee-supply department on 1⅜ as a very nice compromise.—ED.]

YE EDITOR suggests, p. 790, that, by the newspaper plan of uniting, the bees in the upper hive might smother on a hot day. As a strong colony is not used in uniting, there is little danger; yet it is well to be on the lookout, and so, thanks for the suggestion. [We once placed a comparatively weak colony, that we were treating for foul brood, over a bee-escape board with a Porter bee-escape. The escape was clogged with dead bees, but we did not know it. The day was very hot; and before night the bees smothered, the combs melted down, and the honey ran out between the cracks of the upper and lower stories. Robbing got started, and you'd better believe we had trouble in cleaning that yard of foul brood, and it was two years before we dared to move any bees out of it. For that reason we would feel a little cautious about putting even a weak colony above a newspaper for fear that a hot day might come in October, or several of them, and melt the whole business down.—ED.]

WESLEY DIBBLE, you say, p. 769, that if you're not mistaken all the introducing-cages require opening the brood-nest for introducing queens and removing cages. In most of my introducing I don't open the hive at all. Without any opening, the cage is thrust into the entrance of the hive, the No. 3 Miller cage being arranged so the bees cannot get at the candy. Two days later the cage is drawn out and the candy exposed. Then the cage can be taken out any time after the queen has left it. [This manner of introducing would be all right with queens bred in the same yard and during warm weather; but in our opinion queens so introduced that have just come out of the mail-bags would not be as readily accepted as the same queens in cages put between the frames of brood near the center of the brood-nest. As a matter of fact, a fresh laying queen can often be let loose into a colony in the same yard just made queenless. The theory seems to be that if the bees do not discover that they are queenless they are not looking for or expecting to find a new laying queen, and the interloper goes on with her egg-laying the same as her predecessor, and the bees apparently none the wiser.—ED.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Now where should one keep that precious October 1st GLEANINGS—in the regular GLEANINGS file or among the cook-books? They are both clamoring for it. Yes, I know what Solomon said to do to the baby, but I do hate to cut it in half.

* * *

It looks like an early fall here; and if we should have a "regular old-fashioned" cold winter, I fancy it's no more than is due us, as the last two or three have been mild enough. Everybody in this section winters outdoors in single-walled hives, and it will soon be time to look into the question of winter stores.

* * *

One day early in October, while we were tramping through the autumn sunshine, in the old deer park of the once famous Belle Meade farm, looking for nuts, we came upon great stretches of white aster and goldenrod. There were plenty of bumble-bees and butterflies on them both, but not one honey-bee could we find.

* * *

I have read of bees and chickens not living in perfect accord. Our half-grown Rhode Island Red chicks wander around among the hives, snapping flies off the alighting-boards, and never trouble the bees. Nor, apparently, do the bees trouble them. If they are buzzing around too thick, the chick shakes his queer little head, half baby-fuzz and half feathers, and just snaps up another fly. But he makes no mistake about snapping bees. And when, during a recent illness, the water-jars mentioned in a previous page were neglected and allowed to become empty, and the bees, hunting another watering-place, appropriated one of the chickens' drinking-vessels, it was quietly relinquished in their favor. Now they claim it fully as their own.

* * *

When I looked into a few hives yesterday I was genuinely dismayed to find a lot of dead brood. There were great patches of sealed brood, with numbers of fully matured bees, heads partly out, dead. I did not have time to go through all the hives nor to examine very thoroughly those I did open, but practically every one of them had more or less of this dead brood. I am at a loss to understand it, unless the suddenly severe weather, that came upon us recently with heavy frosts, chilled it. No signs of eggs or larvæ either. Brood-rearing evidently stopped almost entirely, if not utterly, for the time, ten days or more ago. But it does seem as though the bees could have kept such mature brood warm. I hope it's nothing worse than the cold weather. Being quite inexperienced in bee diseases I felt at first a wild desire to send immediately for Dr. Ward, our state inspector, for a diagnosis, but refrained for further personal investigation.

* * *

FOR BEGINNERS.

As to these winter stores, you want each colony to have from 25 to 30 pounds of honey to winter on. And if it is difficult for you to estimate it, scattered as it is through different combs, just weigh a few colonies until you accustom yourself to the feel of a properly heavy colony. If you have only a few hives, you can easily weigh them all. The hive itself, with bottom-board and cover, and ten combs, will weigh from 25 to 30 pounds (weigh one first yourself, though, and verify—there's nothing so valuable as first-hand knowledge); so with its occupants and the honey for winter you see you should show 55 or 60 pounds on your scales.

The contraption we rigged up when we first wanted to weigh hives was very amateurish; but it did the work and we still have it. We took two stout cords, each long enough to be laid across the top of the hive and reach on each side to the bottom of the bottom-board. To each end we attached a hook that would catch underneath. The two cords are then placed about a foot apart across the hive, so it will balance easily, and the hooks adjusted. Then we slip a strong narrow stick (a short piece sawed from a broom-handle would be good) under the two cords. You see this would make an excellent handle for lifting. The hook of the spring scales is then put under this improvised handle, the whole affair raised clear, and the weight thereof read on the scales.

Another thing: Of course you want to be prepared ahead of time for increase and crops and all that; but don't go putting foundation into a whole lot of frames that you merely *hope* you may use, and then later in the season, with a forlorn hope of getting them drawn, may be stick them in supers on top of some nuclei that won't do anything but gnaw holes in them and leave them dark and stained, and looking as sorry as you will feel.

THE LAMENT OF THE DRONES

BY GRACE ALLEN

No more?
Not ever ever more within the hive
No more to feel its friendly shelter 'round?
No more to share its pulsing peace, alive
With vibrant hum of motion and of sound?
And we so powerful-winged and light of heart!
Of all this life we love are we a part
No more?



No more.
Not ever ever more within the hive.
An unimaginable end has come.
The things are turning dead that were alive
And all the singing voices turning dumb
And Life herself, who one time bade us be,
Has turned away her eyes, which we shall see
No more.

And this the end?
No end but this for those uncounted days
Of banquetting, or those mad hours of bliss
We went careening, careless, through the ways
Of miracle and light? No end but this?
No end but this. No proud sustaining thought
Of deed with rapture or with patience wrought—
No end but this.

More and more
The dripping night that stalks without the hive
Draws round us, dread and ghostly, grim and stark;
Within, the deepest shadows are alive
With warmth and fragrance, and the very dark
Dreams day to come. But though the great sun burns
A million dawns awake, the day returns
To us, no more—no more.



The Dixie Bee's source of inspiration.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



No rains of consequence this autumn to date, Oct. 12.

* * *

The loquot buds are coming out, and bloom will appear in November, with eucalyptus following closely.

* * *

My home demand became so great for good honey that I was obliged to buy that I might take care of local orders. I sold a little too close earlier in the season.

* * *

There is said to be a house in the city of Redlands that now holds eight swarms of bees, all of which have entered of their own accord in places of their own selection.

* * *

The best honey season for the past fifteen years was in 1905. The first rain that season was on Dec. 31, 1904. This was followed closely by frequent and heavy rains lasting until the first of May.

* * *

The "Backlot Buzzer" tells of the troubles of a man who was afraid his bees would get hay fever from working on goldenrod. Come to think of it, I wonder if it could be the bees I found recently under the pepper-trees had sneezed themselves to death.

* * *

If all of those recipes for cooking with honey were in the household of every family the results would be good without doubt; but confined to an issue of a bee journal read mostly by beekeepers the results cannot be so widespread. Yet it is a commendable undertaking. If the use of honey for cooking could be put under the fad of style the results would be obtained in a very short time.

* * *

The honey season at this date (Oct. 12) may be said to have closed. A few scattering places may be yielding a small amount of nectar, but for the most part we are beginning the consumption of stores rather than the production. Bees in this locality are in excellent condition where sufficient stores have been left for winter. The bluecurl has yielded enough to cause a very healthy brood-rearing condition that has left a good force of young bees with which to enter the winter months.

* * *

The day of automobiles as a necessity is at hand. The time was when they were considered a luxury; but as the age grows faster, more rapid means of transportation is an absolute necessity. A man with several apiaries cannot afford to lose time with the ordinary horse as motive power, if he can get an auto.

* * *

Dr. Miller, you ask what I do with old combs in transferring as described on page 616. All of good quality are cut out and sold as bulk comb honey. The old combs I melt up for the wax and honey. The solar extractor is the ideal place, for in that both honey and wax can be saved. The honey comes in handy for feeding purposes.

* * *

In a certain warehouse in southern California there is a number of cases of last year's honey. Some of the cases are bulged, and leaking from the pressure of sour honey. It does not pay, boys—it positively does not pay to extract nectar. Ripe *clean* honey is the market-builder, and every one should work to that end. Preach it to your neighbor, and, above all things, don't forget it yourselves.

* * *

I will venture the opinion that the late rains leaving the white clover in such excellent condition do not in any manner insure a clover crop next season. I have seen just such seasons in the East myself, only to be followed by a cold and almost snowless winter, with dry April and May. The old Indian was asked how the corn crop was going to be. He replied, "Don't ask me—ask July and August." As to a honey crop from white clover, April and May must be consulted.

* * *

Another case of American foul brood has been discovered in my Tremont apiary, just two hive-spaces from where a case was removed last spring. The combs and bees will likely find their way to a bonfire as the cheapest way to get rid of a single case. However, I wish it distinctly understood that I do not recommend this process where there are several cases. I will never be guilty of burning a hive while in my right

mind; and no great number of combs should ever be burned. The bees may be killed and the combs melted up, but it is a willful waste to destroy any quantity of wax in diseased combs.

* * *

I have not mentioned the sad accident that befell Mr. J. E. Plesants, bee inspector for Orange County. This venerable gentleman was attacked by a vicious bull, and nearly killed. I understand his wife came to his rescue with a pitchfork, and was obliged to inflict terrible punishment upon the animal before she was able to rescue her husband. At present, I am informed, he is able to be about. A mad bull is a frightful enemy, and dangerous. Some fifteen years ago, while out hunting with a brother-in-law I was followed for nearly a mile by one of these animals, but refused to run. I had the privilege of walking backward with a Winchester rifle within ten feet of his head while my brother-in-law held a shotgun in his face. We escaped, but had that fellow made a mean motion he would have been killed on the spot.

* * *

Mr. Raleigh Thompson, page 801, Oct. 1, says he "wants to give Mr. Chadwick something to dream about," and then tells something of his family of six. But really, Mr. Thompson, a family of six is "no dream" with me, but has been a serious reality for a number of years. But, laying jokes aside, his main object was to prove that honey is not a luxury. Well, customs make laws, and it is a very common custom to treat honey as a luxury. It is not considered a staple article of food, and is far too seldom included in the daily order for groceries. I remember, when a boy, of an uncle having given my mother some honey, and there was straightway a childish rejoicing in her household because of that honey. Luxury was the only thought we children could consider on the occasion, and it was surely a luxury to us. Just start out peddling honey, and see if it is not considered a luxury by most people. As long as it is treated as a luxury it will of necessity be a luxury.

* * *

I agree with Dr. Miller when he says, "It is a common thing to find pollen on the inside of a comb and young brood on the outside." But when I find such a condition I feel that I should like to have found it a little sooner so I might have placed an empty comb next to the pollen side and had it full of brood on both sides. The bees will remove the pollen as Dr. Miller says, but they are materially aided by being relieved of the necessity of having to remove it. Mr. Doolittle says, page 750, Sept. 15, "Any comb that is to be put between combs of brood should be full of honey, and that honey preferably sealed." In this I do not agree at all, and I would thank no one for retarding the work of my queens in any such manner. Spreading should never be done unless conditions are such as to induce the queen to fill an inserted comb in twenty-four to forty-eight hours.

* * *

The net-weight law seems to be coming to the front as a desirable requirement, and is now being commended fully as much as condemned. Now, if we could get a law to compel the use of excluders we would be assuring the public that they were getting clean honey and not larvæ soup. Wouldn't there be a "howl" then? Eventually, however, the cry would die away, and we would be more sure of the cleanliness of the honey we are using, and the public would get a better article. Like all laws it would not be objected to by those who believe excluders to be a necessity and a convenience, but might work an imaginary hardship on those who are conscientiously trying to produce a clean article without the use of excluders. Some of the latter, I am glad to say, do produce as good an article without as with excluders; but they are losing more honey than the price of excluders would come to each year. A careless beekeeper using no excluders brings about a sorry condition at the honey-house.

* * *

Mr. Editor, you say, page 746, Sept. 15, "Practically all honey will granulate if given time enough and subjected to alternate heat and cold." Personally I do not believe that alternate heat and cold has any influence on the granulation of honey. The cold has, and it is the all-important factor. If honey (most honey) is kept at an even warm temperature it will never granulate. If kept at an even cold temperature it will granulate just as quickly as if kept warm and then cold. But some kinds of honey will never granulate, regardless of the temperature or its changes—at least it is not very likely to remain on hand a sufficient length of time to granulate. I have a sample of honey from my 1912 crop that has not shown the least sign of granulation, and I shall keep it as a test to see how long it will remain in the liquid state. Bluecurl honey has about the highest chemical freezing point of any to my knowledge, and it will granulate, apparently, hot or cold.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



THE LATE SEPTEMBER FLOW.

Bees in western Colorado stored honey well into September, and in some localities supers of comb honey were filled after the 15th of the month. This late flow materially increased the crop upon the western slope. Taken as a whole, western Colorado had a better crop than the eastern part. The crop was good in parts of eastern Colorado and very poor in others.

* * *

Prices have been better than for average seasons; and while the shipments have been going out at a good rate, there is not much indication of a weakening of the market.

The prices secured in eastern Colorado have ranged around $3.00 a case. In western Colorado, where freight rates are higher, $2.85 is the highest that comb honey has brought, except for a few shipments. Cash is being paid at the car door for many of the western-slope cars that are being shipped this year.

The associations are not permitted to handle honey or produce for non-members; and as few of the associations are owned by the producers, there is not much produce being handled except by purchase. I am informed, however, that the law is being evaded in various ways, so that produce is virtually handled on commission. Honey, however, seems to be in a class by itself, as cash deals are the rule.

* * *

The honey-flow in many parts of Colorado was so slow that none but the very strongest colonies stored honey in the comb-honey supers. Medium and weak colonies packed their brood-nests with honey, crowding out the queens so they could do scarcely any laying. This condition is not good for wintering, as there will be a lack of young bees for winter strength. The men who removed two or three combs of honey from the brood-nest, and replaced them with empty comb, will profit by it this year if it was done early enough.

* * *

When finishing packing my comb honey the thought came to weigh each section in a number of cases to see how much above or *below* the minimum we were running. One case of each grade will suffice to report upon as representative. The case of fancy honey averaged 14⅞ ounces, or 13⅞ oz. net weight, and it was stamped "minimum net weight not less than 12½ oz." The heaviest section weighed 15½ oz. net, and the lightest (and only one of them) 12½ oz. The case of honey weighed 33 oz. more than the minimum weight called for.

The selling price of fancy comb honey, we will say, is $3.15 a case. This would average 15 1-6 cents a pound for the honey. If I had given no more than the weight stamped it would have averaged me 16 4-5 cents per pound. Perhaps I am losing money by not stamping the weight nearer what it actually is; but there does not seem to be a great deal of trouble in selling honey when stamped as we are doing.

The No. 1 case is somewhat heavier than the average of this grade. The lightest section weighed 13½ oz., and the heaviest 16½, and the average weight was 14½ oz. with a little over. Three and three-fourths pounds above the minimum stamped was given with this case. The selling price of this grade is placed at $3.00 a case, which returns 14½ cents for the honey actually given; while if no more than the minimum net weight were given the price would be 18 cents a pound.

The No. 2 case weighed 319½ ounces—an average of 13¼ or 3½ pounds above the minimum requirements. If the minimum amount of honey had been given in this case, and the price of $2.85 secured (which is the going price here), the honey would average 17 3-11 cents per pound. The actual honey given averaged 15 3-5 cts. per pound. This honey stamped "net weight not less than ten ounces" brought more money per pound than the other two grades, as you can see by referring back.

The lightest section in this case weighed 11 ounces net, and the heaviest 13¾.

The question is, "How much more could be secured for this comb honey if the sections did not vary more than one ounce in any one case?" Such a pack would comply with the demand for closer uniformity; and while it would necessitate some more work in packing, it would not be a serious matter.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



Brood-rearing was very heavy until quite late in the season, and colonies are going into winter quarters with great clusters of what must be mostly young bees hatched in August and September—in fact, many colonies now in October still have quite a lot of sealed brood. Other conditions being equal, this should mean good wintering and early building up in the spring. Abundance of clover, abundance of young bees, and abundance of good stores in the hives—are we downhearted? No.

* * *

"Prices are running anywhere from 15 to 20 per cent lower than last year on all grades of extracted"—editorial, page 784. As mentioned in my notes for Oct. 1, I am glad to say that such is not the case here in Ontario, even if our country is engaged in the great war now in progress. Never before have we had such a keen demand for honey, and this notwithstanding the fact that the wholesalers have handled very little of our product. At least one prominent dealer remarked early in the season that this year "The beekeepers could carry their own stock, and they would buy from them as they need honey." If others have had the same experience we have had, carrying the stock has not been a very long or trying job, and the wholesalers will not have very much honey to handle.

* * *

October to date (11) has been cooler than usual, even if we did anticipate a warm fall after so much cool summer weather. Feeding has been a rather slow job, and once again the inverted pail has proven to be the very best feeder for cool weather, as bees would take the feed in this way when they would not touch it in the old-style feeders. We have just finished feeding, and, all told, have used quite a lot of sugar in the different apiaries. At the north yard, which will again winter mainly on aster honey, all the colonies were fed and packed away for winter by Oct. 9, and they can now run their own show for about six months. During that period I am not likely to see the yard more than once; but I suspect they get along just as well as or better than the apiaries do around home that I do more meddling with during these months. Early packing and a dry warm location may help to explain how our bees wintered so well on aster honey last year, and with this thought in view the same course was followed this fall again. This is not saying that they will winter well on these stores again this winter, but naturally I have not nearly the misgivings on that score that I had a year ago.

Much has been said about the quality of aster stores for table use, and the surplus I obtained this year is much better than I had last season. In fact, I have sold it locally at the yard for the same price as the clover, and in a wholesale way was also able to get a good price. Color was about as good as clover, flavor very good, but body not as heavy as standard, this usually being the case with all late fall honey, I believe.

* * *

That special number of GLEANINGS given over to the uses of honey in cooking is timely, and I hope that many will try some of the recipes given. It is a fact that even among beekeepers there is little known, or at least practiced, in the matter of using honey in domestic baking and cooking. That honey is a fine thing for baking various kinds of biscuits and cakes is a fact attested by the large manufacturers of biscuits who use carloads annually. Honey is dearer than sugar, and we may be sure that these manufacturers would not use honey if they could get something "just as good" for less money. I am well acquainted with the manager of one of the largest biscuit concerns in Canada, and he tells me that they simply have to use honey to get goods that will stand keeping for any length of time without drying out badly, as all biscuits, sweetened with sugar alone, will do. Before honey started to get to the wholesale prices that have ruled here in Ontario for the past few years, we used to sell the bulk of our clover honey to the manufacturers; but of late years they use the cheaper honey which mainly comes from Jamaica and is laid down here cheaper than we can compete with. All things considered, this changed condition of affairs has not hurt us much, if any, in the matter of selling our white honey, as the consumption of this has wonderfully increased during the last three or four years, and many families now use from 50 to 200 pounds of honey annually that formerly used little if any.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



FOUNDATION, A CONVENIENCE OR A PROFIT?

"The older writers often speak of comb foundation, but don't tell us whether you use it as a convenience or for the profit coming from its use. Is there enough in either to pay fully for its cost and the labor of putting it in frames and sections?"

The question of the use of foundation is one that is vitally connected with that of wax secretion. Ever since the general introduction of foundation I have had more or less to do with it. At first there was a decided opposition to its use, both on the ground of the suspicion it would create, even though used in the brood-chambers only, and because of the tough bases of that first made, when used in sections for the storing of comb honey. I entertained many doubts about the advisability of using it in sections, and it was a good many years before I could make up my mind that I wanted to use it in that way, preferring to stick to the old method of using natural-comb starters. Then I used it in very narrow starters, and later on in full sheets in the sections, and finally had most of the brood-combs built on it.

I made an observation hive which was so arranged that I could use one, two, or three frames. With this hive I could watch the development of the foundation into comb after a sheet was put in. Foundation accomplishes two things in a very satisfactory manner when carefully used. In the brood-chamber, all worker and straight combs can be obtained. In the sections it can be used as starters, or the section filled so nearly full that the bees will attach the combs more nearly all around than is generally the case where starters of natural combs are used, while it is much more convenient.

In my study of this matter I find that there are times when more than a starter in the sections is practically a waste of the wax contained in the foundation; for, in many instances, the bees simply add their own wax to the imprint for the cells, not even touching the foundation by way of thinning the base or rudimentary cells. With a copious flow of nectar, such as we often have during our basswood bloom, the wax-producing bees are so loaded with their own secretion of wax, that, with no comb to build, they will use this wax in the place of propolis for the filling of cracks and "plastering" up about the hive. At such times they will apparently do better work in the sections where only starters are used, and give far more brittle and enjoyable comb for eating. But the very quality that makes it less edible is an improvement on its shipping quality, so that the combs in sections, built on full sheets of foundation, will go some distance in perfect order; while in the same shipment, sections having only natural comb containing the honey in them will become sadly broken in transit.

Do not misunderstand me. The product, where sections are filled with full sheets of foundation, even where the bees simply add their own wax to it without any drawing out or thinning, is less edible only on account of a somewhat increased toughness and amount of wax, as the taste is in no way impaired. The amount of thinning depends very much upon conditions. The temperature, needs of comb at the time, whether urgent or not, the amount of wax being secreted, and perhaps other minor points, all have to do with the matter. I hold to the opinion that wax is secreted more or less freely at all times during a flow of nectar, the quantity varying as influenced by the prospect of its need, the presence and number of bees of a proper age, and the state of the flow of nectar. If it is true that wax is usually secreted in sufficient quantities to hold the honey gathered, the use of full sheets in sections cannot pay, viewed from the point of saving of honey consumption in wax secretion. But from the viewpoint of having the combs more perfectly attached to the sections all around, giving a greater freedom from breakage in shipping, foundation becomes of value in marketing honey in distant cities that would not be considered when our section honey was wholly disposed of locally.

Some advocate using foundation in full sheets in the sections to avoid having drone comb, as worker comb gives a nicer finish when capped over. Years ago, before the advent of foundation, drone comb was greatly admired, as it gave a little glimpse of the quality of the honey contained in the combs. With worker comb capped by black bees, a box of buckwheat honey could not be easily told from one of clover. But with drone comb, the thin capping next the cell walls would tell the color of the honey in the combs in the whole box.

There are few successful apiarists who do not think that it pays to use full sheets of foundation in frames and sections.

GENERAL CORRESPONDENCE

HOW TO PRODUCE NON-SEPARATORED HONEY

BY ALLEN LATHAM

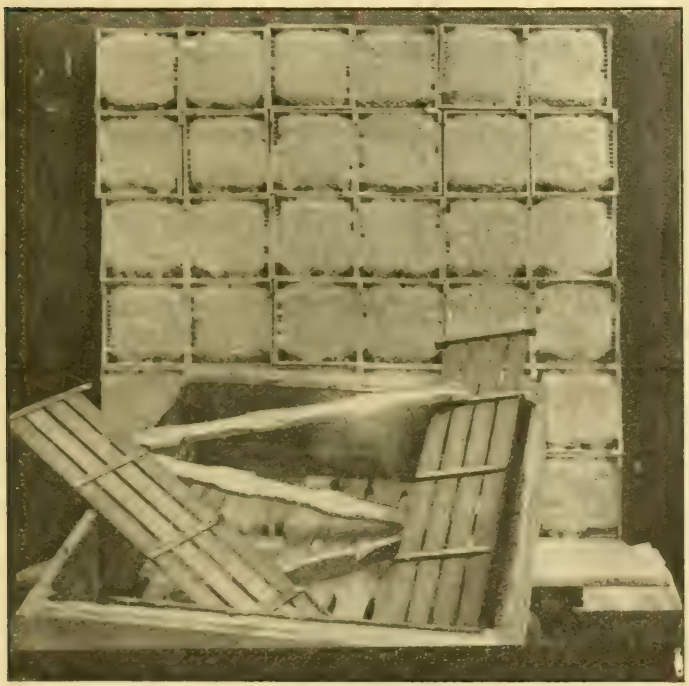
It is unquestionably easier to produce a fine article with separators than without them; but when the proper precautions are followed, it is not difficult to produce a good marketable product without separators. This article will be devoted to a description of the method I follow.

Several things are absolutely essential to success in producing non-separatored comb honey, and perhaps the first of these is the proper setting of the hive. Hives must be absolutely level from side to side, and preferably level from front to back. The last statement is made on the assumption that the sections run parallel to the sides of the hive.

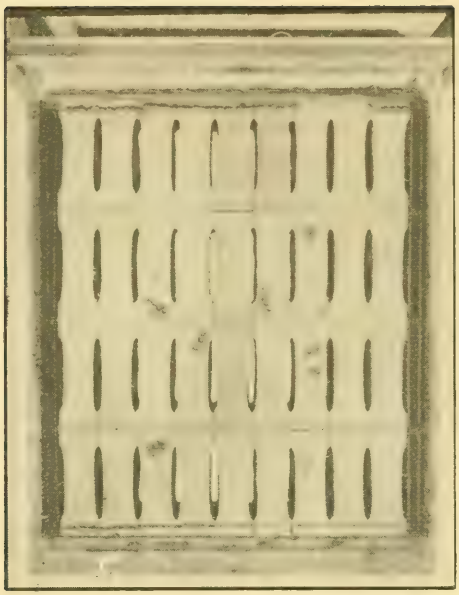
Unless the hive is level from side to side the combs in the sections will certainly swing to one side, and every section in the super will be imperfect. If not level from back to front there is a tendency to the more perfect finishing of one end of the section. Bees naturally build downward; and if downward is toward one corner rather than the bottom of a section, one corner will get finished before the other. In hot weather, too, the foundation will be apt to buckle or sag toward the lower end of the section.

I realize the set determination of most beekeepers to slant their hives from front to back. Their purpose is good, but their execution is poor. The hive should be level. The bottom-board should furnish the slant. Every argument is in favor of the slanting bottom-board. One great advantage of the slanting bottom-board is that the bees have depth beneath the combs at the front, and only a bee-space at the back of the hive. This largely prevents the building of combs beneath the frames. My readers who use that style of bottom-board with two sides, summer and winter sides, will appreciate this. The back half of the hive will frequently be stuffed with drone comb between the bottom-bars of the frame and the floor of the hive. This difficulty and others are overcome by a bottom-board which has a slanting bottom.

Next in importance is a big force of bees. A small colony of bees will produce good section honey when separators are used, for they cannot build comb beyond the separator, and so each section has its own comb limit. When separators are not used, the bees of a small colony will start on a few sections and will work along building each comb into the space of the next section. Hence each section is bulged. Unless one has mastered the problem of keeping his colonies strong he had better not try to produce honey without separators; or shall I say he had better not try to produce honey at all? When strong, a colony (as soon as the flow starts in) will occupy almost the entire super



I detest section-holders, and use free slats 17 inches in length.



A super just as it came from the hive. Note how little bulging.

at once, and will start every section before any are much advanced. As the work progresses with uniform speed in the several sections, the comb of each has its allotted space, and there is little or no bulging.

Next in importance is the strain of bees. It is almost impossible to produce good section honey with some strains of bees; and, though this peculiarity is not limited to honey-production without separators, it is essential to success in such honey-production. One should not breed from such queens as give bees which do not yield well-finished sections. I do not know why it is; but some bees will not build straight combs, even in natural-comb building. They seem to like curves, and will frill their combs. I think every observer will agree with me in this, just as we all know how some strains will persist in building brace-combs, fastening their combs to the separators, or to the sides of the super, or to each other. Breed entirely from queens whose progeny yield a smooth comb with well-developed sides or edges.

Next in importance we might name the method of using foundation. One can produce almost equally good non-separatored honey with either starters or full sheets. For over ten years I produced comb honey without separators, using only starters. I gave up starters because I fully believe that one can get a larger crop by the use of full sheets, and also because when starters are used much drone comb is built and the queen is very likely to enter the super—always with disastrous results. Section honey with drone comb is, at the best, not so pleasing in appearance to my eye as worker comb. So, if one produces section honey without the use of separators he had better use full sheets of foundation.

Now comes the question of using free hanging sheets and bottom-starters, or of using pieces which fill the section from side to side, and do without bottom-starters. I have tried both methods, and can see nothing but wasted labor in the use of bottom-starters. I will not breed from a queen whose bees will not build comb to the bottom of the section. With the right strain of bees there will be absolutely no need of bottom starters. But there is absolute need of sheets of foundation which fill the section from side to side, or end to end.

I buy foundation which is just four inches wide. I cut it so that there will be a scant quarter-inch space at the bottom of the section—that is, I cut it a trifle longer than 3¾ inches. I find that if it is cut longer than this it will sometimes stretch so much in hot weather that it will buckle and cause a bulge. Yet I have produced good sections by using sheets four by four, completely filling the section.

The use of hot-plate machines has been dropped. My sections are all filled by the melted-wax system. Blocks of the right thickness are nailed to a light board, and sections placed on these blocks. The brush from the melted wax is run along each end of the section, and then along the top. I make no effort to see that the foundation is attached throughout the side edges, nor even at the top. If four-fifths of the top and half the sides are attached good results will be assured. The sheet must be exactly in the middle of the section, and the section must be square. When the sections are placed in the super they must not be forced to cause the foundation to buckle or spring away from the walls of the section.

It sounds like a lot of labor to put in foundation this way, but it is labor that pays. I can hire a skillful boy at one dollar or so per day, and he can put up one thousand a day. Under pressure I can myself do about two thousand. After one is used to the work he can do it well and expeditiously. It is essential, however, that the foundation be well made, cut true, and that it has not suffered in shipment. It is an art to make foundation, and it is another art to cut the little sheets for the sections. I do not trust the cutting to any one but myself. I can cut five pounds in about half an hour.

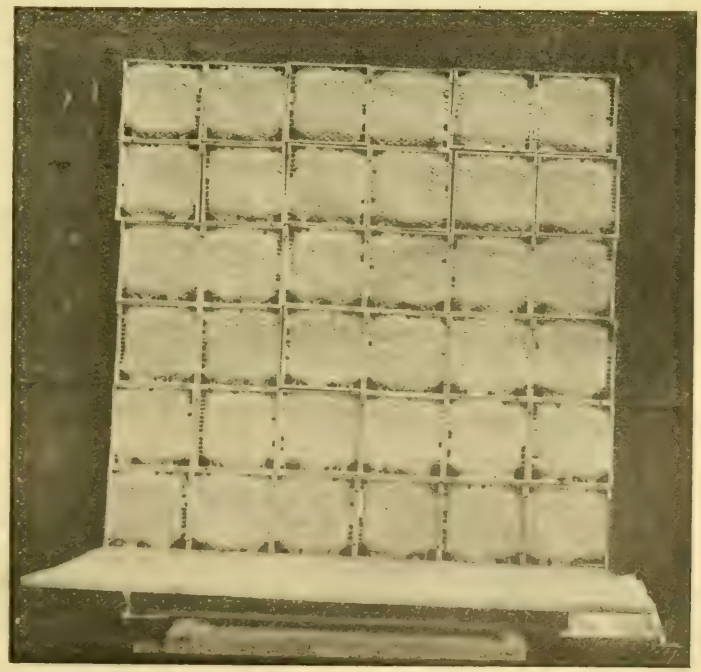
Next in importance is the section. Though good results can be obtained with two-beeway sections, I have adopted almost exclusively the four-beeway section. The passageways at the ends of the sections appear to aid the bees in building the combs true. In their desire to keep open that passage they refrain from building the comb of either section so that it trespasses upon the passage. When sections with two beeways are used, there are often sections which have the combs of one built slightly into the other adjacent section. When taken apart these sections will be dauby. It is less pleasant to handle four-beeway sections; but after one is used to them he forgets all that. Habit should never be allowed to stand in the way of the adoption of an improvement.

The illustration will show more of my method. I detest section-holders. I use free slats just seventeen inches in length, and my supers are seventeen inches in length inside measure. The bee-space is at the bottom, and the sections are flush with the top of the super. My supers are very light and simple; and as I use outside rims, they are amply protected from the weather. The illustration shows a super with top view and with bottom view, just as it came from the hive. One illustration shows the sections removed and piled to display each. These thirty-six sections shown are the original thirty-six of the super. Their net weights are as follows: One weighed 12 ounces; five weighed 12 1-5 ounces; three weighed 12¼ ounces; two weighed 12 1-3 ounces; nine weighed 12½ ounces, seven weighed 12¾ ounces, three weighed 13 ounces, two weighed 13¼ ounces, and four weighed 13½ ounces. It will be noted that the lightest had 12 ounces of honey, and the heaviest 13½ ounces—a range of 1½ ounces. It should be noted here that sections 1½ inches wide are used, designed to produce a twelve-ounce section. The variation in weight of sections was largely due to the more complete filling of some over others. Some combs were doubtless slightly thicker than others, but not noticeably.

One should study the illustration which shows the supers standing on end with a background of white cloth. If the number of spaces be noted where the cloth can be freely seen though the spaces between the combs, it will be readily seen how little bulging there is. It was impossible to show with the camera all the spaces, but every space was clear. Of course, this was a selected super; but I spent some time before I decided which of several supers to put before the camera.

You can lead a horse to water, but you cannot make him drink. I do not expect to win many over to the production of comb honey without the use of separators; but I have led the way. We are all free to do as we please; but when one produces almost exclusively non-separatored honey, it shows that it is not a method to be easily cast aside. My crop this year, with more to hear from, is over 5000 sections, and bee-keeping is my avocation. Those who are so strongly opposed to this method of producing honey might do well to learn how it can be done before they condemn it.

It would not be wise to leave one of the illustrations without a word of explanation. In that the super emptied of its contents is shown, and several separators of the fence



The net weight varied but 1½ ounces.

type appear. Though I have very little use for the fence separators as such, I have a high appreciation of their value as followers. A blanket of bees over the outside rows of sections guarantees completed sections where so many fail to get good results. I have more than once, since I adopted this system, seen sections completed and sealed in the outside rows before those in the center were completed. I would most earnestly recommend all producers of comb honey to use fences between the sections and the super walls. I use by preference fences one side of which have half a bee-space and the other about ⅜ inch. Those in the illustration are some made over regulars.

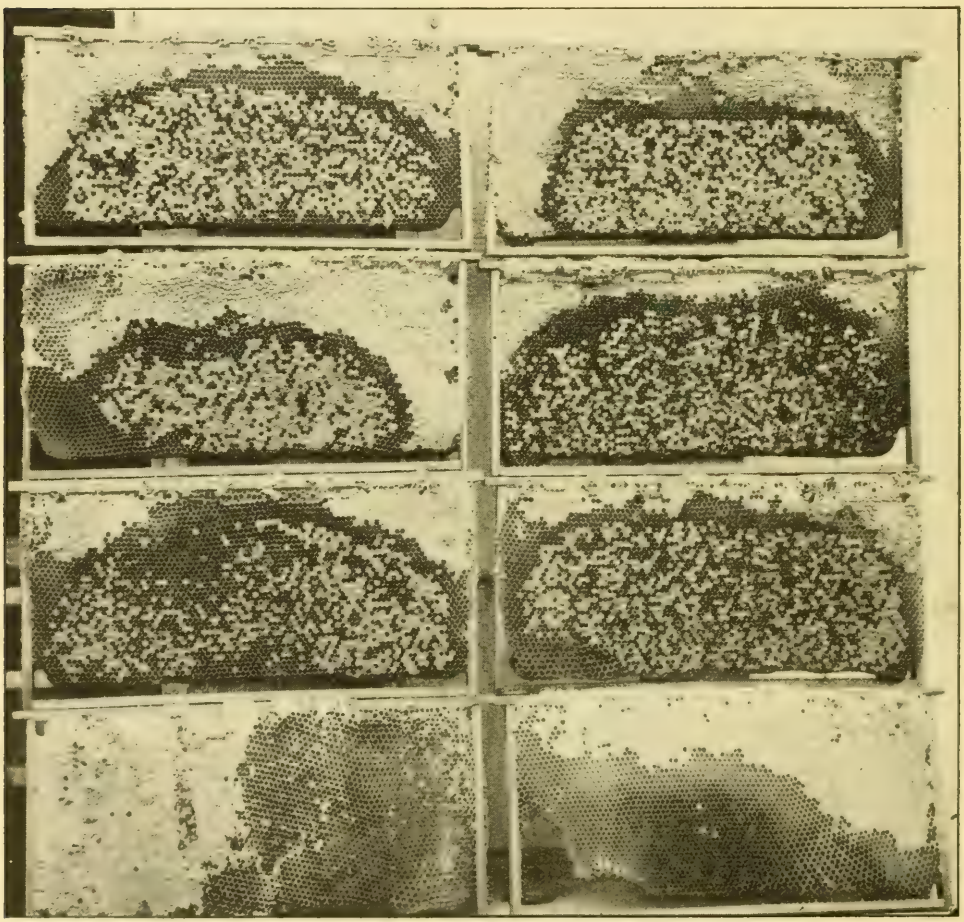
Norwichtown, Ct.

WHAT AILED THE BEES?

BY J. W. ADMIRE

The illustration shows a full set of frames taken from an eight-frame hive belonging to a friend of mine. Now nearly 70 years old, he has kept bees nearly all his life. His colonies have ranged in number from one to probably twenty-five.

One day early last spring he stopped me on the street and said that nine colonies out of twelve had died out, and he thought they must have "winter-killed," as they were wintered out of doors, but that on examination he found that all nine hives contained quite a bit of honey. We went to the barn where he had stacked the hives up with



I never saw a worse case of American foul brood.

contents. As soon as we entered the barn I noticed a strong scent, and I almost knew before opening a hive that his bees had foul brood.

We looked through the hives, and all were in about the same condition. The investigation showed that his colonies had had American foul brood, the worst kind, and he did not know it. I began to question him, and was astonished to learn that he never lifted a frame out of a hive to inspect it, and had never seen any disease. I found it hard to convince him that his bees had died from foul brood.

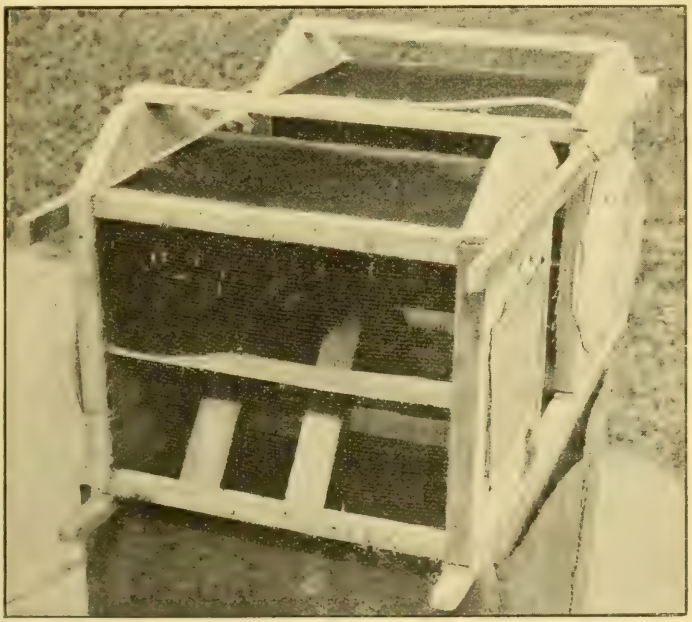
I had never seen a worse case. I photographed the contents of a hive. What impressed me more than anything else was to think that a man could keep bees all his life and yet know so little about them.

Hiawatha, Kan.

ACHORD'S SUCCESS IN SHIPPING BEES IN POUND PACKAGES

BY E. R. ROOT

On page 744 of GLEANINGS for Sept. 15 I referred to the success of W. D. Achord, of Fitzpatrick, Ala., in shipping bees in pound packages to points in Canada. He has apparently been more successful than most of us, from the fact that he used a larger cage with more wire cloth. In fact, his cage has two or three times the ventilation of the regular standard cages for holding the same number of bees. This extra ventilation and larger cubic capacity has enabled Mr. Achord during all kinds of weather, hot and cold, to achieve almost perfect success.



W. D. Achord's cages have two or three times the ventilation of the regular cages for holding the same number of bees.

As stated in our issue mentioned above, one beekeeper in Canada has come to believe he can buy pound packages of bees from the South as cheaply as he can winter over colonies in the rigorous climate of Canada.

Mr. Achord's pound packages of bees are made up of *young bees* ready for business, while the wintered-over colonies, even though of two or three times the numerical strength, are made up of old bees; and it would not be very long after the first flight for pollen and water before the wintered-over colony would be but little stronger than the pound of bees, with the disadvantage that most of their numbers would be bees of the previous fall.

To test out the Achord plan of shipping bees we sent an order to the Fitzpatrick man for two one-pound packages of bees. These were shipped on Sept. 20. They arrived promptly at Medina, and we kept them for a day. There was scarcely a dozen dead bees in the two packages. We then sent them to Dr. E. F. Phillips, of Washington, with instructions to return them to Medina. He reported that they arrived in fine condition, with scarcely any more dead bees than when they reached Medina. They were so fresh and nice that we first thought Mr. Achord had sent us a duplicate shipment, because it did not seem possible that those same bees could make three trips and look as nice as these did; but as events showed they were the same bees that left Alabama on the 20th. We kept them for

three or four days in order to watch them; and before we knew it some of the bees in one of the cages began dying. Examination showed that neither package had a particle of food. We immediately replenished the pans with candy; but it was evident that the bees of one of the packages had suffered considerably. However, we sent them on again to Washington, with instructions to return again. This morning, Oct. 7, they came back, and the one that had not suffered from starvation had suffered a loss of only about 150 bees out of a total number of 5000, or a loss of only 3 per cent, after the five trips of 27 days from Fitzpatrick, Ala., and then on to Washington and back, of two round trips.

The bees in this package are still sweet and nice, and possibly would stand more journeys; but 27 days from the time of shipment is as long a time as any bees would be *en route* in the United States by three times over. It may be reasonably presumed that Mr. Achord can ship bees anywhere in the United States and most places in Canada.

A closer examination shows why the bees in one of the packages used more food than the other. Its bees had built a piece of comb about as large as the palm of one's hand. This occasioned an additional consumption of stores, and incidentally goes to show that bees can build comb without any other food than pulverized cane sugar and honey. Neither cage contained any water. When proper provision is made for ventilation, water seems to be unnecessary.

The cut shows that Mr. Achord has so designed his package that it is impossible to pile any other stuff on top of it, nor anything near it to shut off ventilation. This is quite important. As the express charges are based on *weight* and not on *room taken* in the express car, the projecting sticks add nothing to the cost of transportation.

THE CYCLONE SYSTEM OF BEEKEEPING

BY DANIEL DANIELSON

Many times I have seen pictures of apiaries with straight rows of hives. Of course it looks ideal. I used to have bees in two long straight rows with a car-track between them to carry the supplies out and the honey in; but I have now given up the idea, and have what I call the Cyclone yards. If you look at the hives from an elevated position they look as if a cyclone had dropped them in every way. The entrances face all the points of the compass.

I now have only about two per cent of queenless colonies in the spring, whereas before I had as many as twelve per cent. I run my apiary mostly for extracted honey; and by working the queens for all they can do, I raise the brood above the queen-excluders, thereby preventing swarming, and get very strong colonies to store honey. The queens get a set of empty combs or foundation below whenever the lower story is full of brood. By that plan the bees usually supersede their queens in August or September.

With the hives in straight rows, and the entrances all one way, a good number of the queens lose their way. Since I have the cyclone style of beeyards, very few are missing in the spring. In the winter I put the hives together in a close row, and cover



With the hives in irregular rows, only two per cent of the queens are lost.

them with tar paper to protect them. In the spring the hives are put all around, cyclone style, again.

My way of wintering bees for many years has been by using sealed covers. It is the only natural way, the way that God or Nature taught the bees to prepare for winter. If it had been better any other way the bees would be carrying all kinds of material into their hives to make a cushion on top of the brood-nest.

I am satisfied there is no better way than to let the bees seal everything up tight for winter. Any colony that is strong and in normal condition will come out all right.

La Feria, Tex.

NOTES FROM THE APIARY; NEW APPLIANCE FOR UNCAPPING

BY JOSEPH GRAY

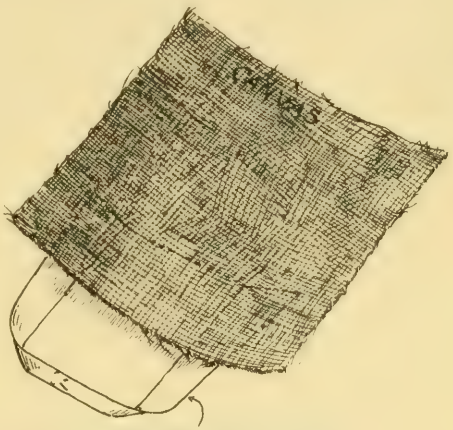
After a season's use of a butcher-saw, weight 3 pounds and length 30 inches, I have no hesitation in recommending it for uncapping. It does away with the need and expense of a fire and the attending danger. It makes a clean cold cut, and is instantly ready for use. A few changes are necessary in the equipment. For instance, you need to be back from the screen 30 inches to allow for the sweep of the saw; and the rest for the comb must not be above 33 inches high. This allows you to stand well over your work. I space my combs wide and obtain combs weighing 7 to 10 pounds. A frame with a 1 1-16-inch top-bar and ¾-inch bottom-bar is ideal. The Hoffman side-bar makes no difference.

Grasping the comb by the bottom-bar, set the lug in the rest and make a clean sawcut from one end of the frame to the other. Reverse the frame so that you always cut from top-bar to bottom-bar. A butcher-knife with a 6-inch blade is a handy tool to scrape top and bottom bar, and also to scrape the capping off. Do not *cut* those that sink below the sweep of the saw-blade. Scrape them.

In using the saw, just saw as a butcher does. Awkward? Sure you will be so, and very slow at first. You cannot so easily unlearn the upward cut and use of the uncapping-knife and relearn in a day the use of a heavy saw. It takes a butcher years to become expert in its use. When you see the nice even combs that now weigh 6 pounds, and realize how easy and uniform they are to extract, and how regular the bees build these same combs after they have been worked over once, you will see the advantage of cutting off 3 pounds of weight in the capping and throwing out with the extractor 4½ pounds weight, leaving 1½ pounds weight of empty comb, all uniform and all equal.

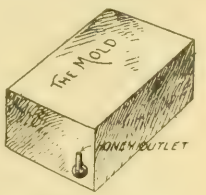
NEW WAY TO USE THE SOLAR EXTRACTOR.

After my cappings are drained, and the honey piped away to the main tank, I grasp the four corners of a piece of burlap, which has previously been laid in the bottom of the uncapping-tank, and carry the whole of the cappings to the solar. The arrangement in the solar consists of a removable tin end and canvas. The tin end is cut from the ever useful five-gallon can as shown. The square of canvas is then over the tin, and the capping dumped on to the canvas.



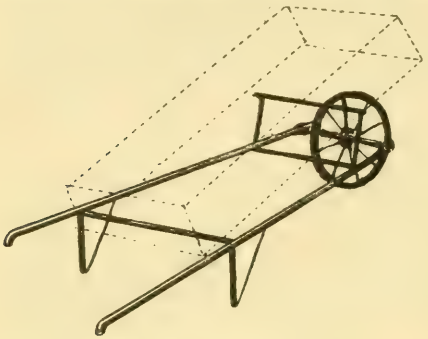
TIN SOLAR MELTER

The melting honey and wax flows to the edge and then over into the mold. The refuse is held by the canvas and the edge of tin. The mold is made from a lubricating five-gallon can, side cut out as shown in the illustration, and the spout turned up to allow the honey to escape after reaching a certain point. The honey is not subject to further heat, as it runs under a covered part of the solar to be drawn off later at the faucet. The mold, catch tin, and canvas should be in duplicate to allow the solar to be attended to at night, the wax to cool, and the canvas to be cleaned during the heat of he day.



In case of remelting cakes of wax, use an ordinary five-gallon can. Cut below the

line of the screw top, and press the sides and ends concave so that there will be no difficulty in removing the big cake of wax.



The thin tin of the can yields easily, and only the bottom is held. Load the solar with 24 pounds of wax to remelt, and you will be able (in this way) to take off a cake of beautiful wax 22 pounds in weight.

SKELETON BARROW.

The Outlaw had a dig at the antiquated method of Alexander's comb-bucket. I suppose our skeleton barrow and long box holding 40 combs would please him. It is built of 2 x 3-inch material, and is 6 inches long—a skeleton or frame only. On this the box rests as shown in cut. The box has a zinc bottom and measures 5 inches long, wide enough for the frame to hang. Four wet sacks complete the best arrangement I have ever used.

Heber, Cal.

[This is the first of a series of two articles by Mr. Gray entitled Notes from the Apiary. The second will be published in an early number.—Ed.]

THE STRENUOUS BUSINESS OF AFRIKANDER BEEKEEPING

BY A. R. CLIFTON

The bees in this country are nearly all exceptions, or at any rate exhibit many exceptions, and this not alone in the hands of novices to which Mr. A. C. Miller attributes many failures.

In temper they are most variable. Many people handle them without smoke or veil; but they have been known to turn so vicious that they killed the person operating. They also occasionally kill fowls, dogs, and horses. Three weeks ago my bees killed four donkey foals which were loose in a large field fenced off from the bees at a time of the year when they were weak in numbers, and when no one was near. We found the donkeys about 100 yards from the hives some hours after they were stung. The illustration of a Zulu servant with an ax was taken on my home ground, and the field just visible in the background is where the donkeys were stung to death.



Just beyond, three donkeys were stung to death.

On another occasion a woman asked me to take her bees away because they had killed her mule. I found the three hives were in paraffin-cases with sacks thrown over them. These bees seemed mild-tempered, and under the sacks I found two snakes, which I killed.

Besides their temper, many other unusual traits are exhibited. They are very prone to start fertile workers, and I have seen eggs laid by them while queen-cells and even fertile queens were in the hive. In the latter case, however, the fertile workers soon disappear. It is not uncommon to find from fifteen to twenty such eggs in a single queen-cell.

On the subject of fertile workers I heard

one of our largest local beekeepers state that he would guarantee that laying-worker eggs would produce *worker bees*, and he would demonstrate this to a number of experts or forfeit 20 pounds. My experience, however, has been directly opposed to this, though I have seen fertile - worker eggs in a colony that had a fertile queen, and which eggs were not hatched at all, in any case.

The bees in this country vary from a deep brown to four bands of yellow, those on the coast being the darkest on the whole, while in the high veldt of Orange Free State I have never seen a bee that had not at least three distinct yellow bands. Many authorities declare the bees of South Africa to be smaller than the Italian, and also to vary in size. Be that as it may, all naturally built comb that I have measured has the same size of worker cells, while American-made queen-excluders answer our purposes admirably.

The second illustration shows the opposite side of the same apiary, and my little girl eight months old, whom you will observe, is being brought up to use a veil when with the bees. She hopes one day to to be a great beekeeper.

The apiary is enclosed with high hedges of Port Jackson willows on three sides, and



The apiary is enclosed by high hedges.

pine-trees on the fourth side. These trees are quick-growing, and, when planted thickly, make good windbreaks. We had a severe windstorm this month. Several trees were blown down, one of which smashed a hive: but with this exception none of the hives were blown over.

Cape Town, South Africa.

ORIGIN OF ALBUMEN IN HONEY

BY J. A. HEBERLE, B.S.

If a sugar syrup with a trace of sodium carbonate and enough litmus color to make the syrup blue is fed to bees, and the alimentary canal of such bees is examined, the honey-stomach shows small air-bubbles in a red-colored fluid. These bubbles of carbonic acid, and the change of color from blue to red, mean that in the short space of time it took to imbibe and swallow the syrup an acid has been added. It is known that the acid is contained in the secretions of the salivary glands.

Dr. Langer had asserted, in giving an account of his researches on honey, that with the sour secretions of the salivary glands an albuminous body was added to the honey that afterward could not be separated from it. Dr. Langer was very much interested in demonstrating not only that the honey albumen was from the bee, but he wanted to show that it is a product of the salivary glands.

The direct way to prove this by the biological method would have been to separate a considerable number of these very small glands and inject the watery extracts, and so prepare an antiserum. As the glands are so small it would have been a great deal of work; so he tried another way, which required much less work, and seems fairly free from objections.

Dr. Langer made watery extracts from separately triturated heads, thorax, and abdomens from field bees, and injected these to obtain the antiserums. From these only the antiserum from the heads gave a small precipitate with honey albumen.

The result led to the supposition that the field bees were only for bringing the sweets, and that the younger bees had to complete

the change from nectar to honey. To investigate this supposition he used a very active honey antiserum, and tested separately a number of watery extracts of heads, thorax, and abdomens of bees of different age. Later he extended the investigation to drones and queens. The results are shown in the following table:

Material used in the experiments	Watery extracts gave ppts. in millimeter from the		
	heads	thorax	abdomens
Workers shortly after hatching	0.0	0.0	0.0
Workers from the			
brood-nest	17.0 m/m	0.0	trace
brood-nest	25.0 "	0.0	"
super	25.0 "	trace	"
Field bees	0.0 "	0.0	"
Drones	0.0 "	0.0	" ?
Queens	0.0 "	trace	30.0 m/m

Chyme from larvæ	Dilution of the chyme 1:10,000
of the workers	4.0 m/m precipitate
of the drones	16.0 m/m precipitate
of the queens	30.0 m/m precipitate

The conclusion to be drawn from the above is that the albumen in the honey is from an organ located in the head. This organ (salivary gland) in bees just hatched seems not to have started its work, while in the drone and queen it is either wanting or exists only in a rudimentary state.

It is known that in the head of the worker there are three glands; in the head of the queen, two of them, but only one well developed; while in the head of the drone there are also two glands, but neither of them well developed.

The table further shows what practical beemen have long known from observation, that the younger bees are the nurses of the colony. The newly hatched workers show no precipitates, the organs have not yet become active; but as soon as the glands of the young bees begin to secrete, the bees instinctively turn nurses and feed the larvæ. After a while the older nurses are replaced by the younger bees, and start to go to the field. The secretion not used or needed is stopped; the glands become inactive. If, however, by force of circumstances, the old bees are compelled to feed the larvæ the glands become active again. The heavy precipitate shown in the table by the abdomens of queens may be explained by the fact that the queen receives as nourishment chyme from the bees in attendance. It is this predigested food the queen receives so profusely that enables her to perform the tremendous task of laying 2000 and even 3000 eggs in 24 hours.

To prove that the chyme fed the young larvæ is the secretion of glands in the head of the bee, Dr. Langer shook a colony that had considerable brood on empty combs, and fed them sugar syrup to which albumen from her eggs had been added, and then dequeened it. Several queen-cells were started with much royal jelly in them. He then examined the watery extracts of heads, thorax, and abdomen with egg antiserum. The abdomens showed a heavy precipitate with the egg antiserum, but the royal jelly gave no precipitate with the egg anti-serum. This shows that the bees add nothing from the contents of the stomach to the food for the royal larvæ, or the egg albumen is in the stomach of the bee so changed or reduced that it cannot be detected by the biological method. Dr. Langer concludes that the chyme used as food for the larvæ is a pure secretion of the glands in the head of the bees.

Fischer, a well-known scientist, said in 1874 that the chyme is a secretion of the salivary glands. These glands are, in the young nurse bee, a juicy organ, while in the old worker bee it has shriveled, leaving in the head an empty space of about two millimeters.

Bavaria, Germany.

A NEW STARVATION METHOD OF QUEEN INTRODUCTION

BY A. T. RODMAN

The method of introduction which I have used this season has proved the most satisfactory of any I ever tried. So far I have not lost a queen when I followed the rules.

But in the first place I must explain that all of my hives have metal covers with an inner cover under the metal cover. This inner cover has a half-inch hole near one edge. I lay a piece of section over this hole and tack one end so I can swing the other end around from over the hole.

I use West queen-cell protectors to cage my queens in. I place a little tube in the small end of the cage, filled with queen candy. I make the tube by bending a very thin piece of tin. The tube is about ¾ inch long. The outer end is stuffed with paper. I catch the queen late in the afternoon or evening. When I locate the queen I place the large end of the cage over her. As soon as she crawls in on the side I remove the cage, closing the end by inserting the piece of tin between the wire coils. I now put three bees in with her for escorts, and lay them away till dark.

As soon as it is about dark I remove the

tubes and let the escorts crawl out. Then I replace the tube with the end stuffed with paper on the inside so she cannot get any food.

Queens thus prepared I leave alone for thirty minutes, and by that time they are quite hungry. Then I take them to the apiary and remove the outside cover of the hive. I remove the tube from the end of the cage and insert the small end of the cage in the hole of the inner cover. I leave it so, and go to the next hive till all are in place. When all are ready I go to the first one; and if the queen has not passed down I light a little smoked rag and hold it close to the cage and blow a little smoke on her. She will pass down at once. Then I remove the cage, close the hole, replace the outer cover, and the job is done.

I have introduced queens to colonies that had ripe cells, and the virgins hatched the next day. I looked in the second day and found the old queen laying, and a young virgin which I removed. This has happened twice this season.

Three things to be remembered are that the colony must be queenless; the queen must be hungry, and she must be introduced after dark. As I introduce the queens through a small hole the colony is not disturbed at all, and I make as little noise as possible.

Kansas City, Mo.

HOW TO DO THINGS AND HOW NOT TO DO THEM. IV

Some Pointers on Comb-Honey Production

BY R. F. HOLTERMANN

A beginner in beekeeping has to face the question of what kind of honey to produce —comb or extracted. This is a somewhat difficult point to decide, especially if bees are kept in a small way and the article produced is intended for home consumption.

In the production of comb honey less equipment is required. If disease is prevalent it is less liable to spread, because the supers once taken off are generally permanently separated from the bees; whereas in extracting, wet combs are put back on the hives; and if not interchanged on hives they at least touch the extractor-baskets, and the honey is distributed. For any one who wishes to stop the bees from swarming it is more difficult to do this in the production of comb honey. On the other hand, so far as I know there is a better demand for comb honey; and, in case of the extensive and experienced beekeeper in a good locality, more money can be made out of the production of comb honey in most markets.



FIG. 1.—With full sheets of foundation the bees enter the supers more readily.

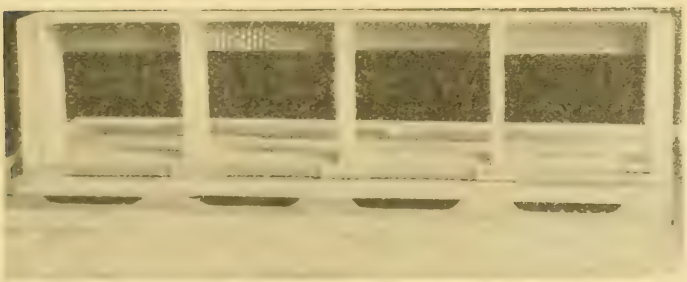


FIG. 2.—I unhesitatingly advise against the use of starters.

The question of whether to produce comb or extracted honey is one which the beekeeper will have to decide for himself.

FULL SHEETS OR STARTERS IN SECTIONS.

Contrary to the practice of many, I unhesitatingly advise the producer of comb honey to use full sheets of comb foundation as in Fig. 1, and not starters as in Fig. 2. With

full sheets the bees enter the supers more readily, and in that way the bees are less liable to crowd honey into the brood-chamber and swarm.

Fig. 3 shows sections built on full sheets of foundation, and Fig. 4 shows the section honey built from small starters. When selling such honey as in Fig. 4, the best price is not obtained, and the honey will not stand the jars and bumps that that in Fig. 3 would.

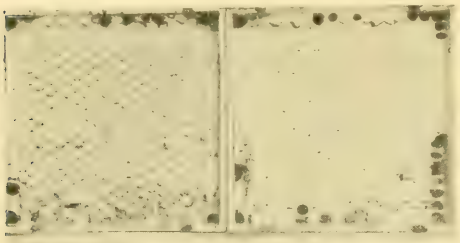


FIG. 3.—The consumer prefers the well-filled section.

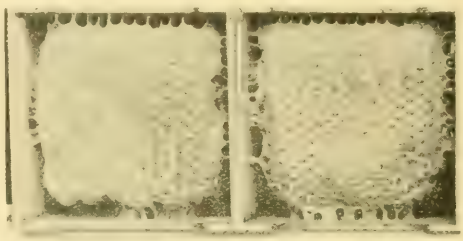


FIG. 4.—The best price cannot be obtained for such honey.

I have done a good deal of comb-honey shipping; and unless the comb is well attached to the wood I never know in what condition the honey will reach its destination.

Then, too, selling honey by the pound each section weighs less. I have heard some people say that if the section is not filled next the wood it cuts out more readily. This is very thoughtful and considerate; but the consumer rarely sees matters in that light, and will prefer the well-filled section. Some may not like it; but I think the net-weight law for comb and extracted honey is a good law. The consumer knows what he is getting, which he has a right to know. I wish we had to put up our honey in that way in Canada. It would be fair for all.

In closing I should like to add an item in favor of comb-honey production. Owing to the limited room which can be given in the supers, at the close of the flow there is generally more honey in the brood-chamber, and the colony is thus better provided with fall and winter stores.

Brantford, Canada.

THE LET-ALONE PLAN

BY S. M. CAMPBELL

It is time that something be done to help the beekeepers, especially in California. It has come to the point where bees will not pay expenses at the price honey is selling this season. There are many tons selling at 3½ cts. per pound—cheaper than sorghum molasses. The beemen are up against a hard proposition, and will have to cut down expenses or go out of the business.

Here is my plan to help them out in working bees efficiently. A little further on I will tell how I worked this plan successfully in Arkansas, and I know it will work in California.

Suppose a man has 600 or 700 colonies. Instead of employing two or three men, work them with but one man, and do not put in so much time. It does not pay. In the first place, have all the super room you think they will fill. We all know that this is the main thing to control swarming. Of course it will not keep them *all* from swarming; but when we get all this plan together we will knock swarming out; and swarming is what the beekeeper dreads.

Suppose further that we have outyards. The first trip in the spring will be to inspect each yard and equalize the honey. Be sure that each colony has forty pounds to commence with in the fall. I have found that this amount is somewhere near the amount it takes to winter a strong colony here in southern California.

The second round will be to equalize brood. Here is where you can overcome swarming. Don't do this too early nor wait too late. When it gets warm, and some of your colonies begin to get strong, open up the hive and take out two or three frames of brood and give them to the weaker hives. But do not give over two frames to any one colony at a time, for if you do it will make them ball their queen. Always give drawn combs in place of the brood you take away, as it is much better than foundation.

Be sure you have your hives three stories high, and four will be better. If you want to make fewer trips you can put the room on all at once. In case you do not care to

put the supers all on top you can put one or two underneath, and the bees will work down when they get full above.

I think there is much harm done by going through the bees too much. Learn to work fast with bees. Get the notion out of your head that you have to work slow. If a man has 2000 colonies of bees he needs only three men. Commence in time. It is much better to give them too much room, or a little too early, than not enough or too late. This is not guesswork, as it has been done by the writer, who located at Mineral, Ark., in the year 1900. That year I had 180 colonies of bees and 35 acres of small fruit. I made $1250 on the bees, and with just a few trips. They were in three yards. The furthest one was fifteen miles from home. To show what can be done, I made $11.00 a day for the days I worked with the bees from the time I started in the spring until the honey was sold.

I peddled the honey from house to house at 12½ cts. a pound. It was bulk comb honey, as that was before they had begun putting honey in buckets. I hauled it to market in new wash-tubs. I used the 5⅜ frame, cut the honey out, and laid it in the tubs. It was a good advertisement—nice comb honey stacked clear above the top of the tub. I did not miss many sales because of the honey being in a tub. They were nice bright tubs, and I had a clean cloth tied over the honey to keep the dust out. When I got to town I always got a boy to drive my wagon, and I worked both sides of the street.

I especially remember our trip to Jenny Lind, Ark. This was a mining town; and as the miners had been paid the day before, they all had money, and I sold $100 worth of honey that day.

But I do not claim to have done all this work myself, for I did not. I had a good wife to help me. That year we made $2400 from our bees and fruit. But she died five years ago.

Bees have not made much of a crop in this section. Mr. D. R. Taylor, the man I work for, got a fair crop. His bees—550 colonies, spring count—made eleven tons of white honey and about four tons of amber from sumac. Mr. Taylor does not put the sumac honey on the market, but keeps it for spring feeding, for which it will be just as valuable as the honey he sold. He also increased his colonies to 1200. He is building his bees up by dequeening in the fall and replacing with young Italian queens from two fine breeders. They are the nicest bees to handle I ever saw. I have been raising his queens for three months now, and have opened the two breeder colonies to graft cells from nearly every day, and have never been stung by these bees, and I handle them without veil or gloves.

Nordhoff, Cal.

MICHIGAN'S FIFTIETH ANNUAL MEETING

BY F. ERIC MILLEN, *Secretary-treasurer*

On December 15 and 16 the Michigan beekeepers will hold their fiftieth annual meeting at Grand Rapids. This meeting promises to be one that will set a new record in interest and attendance, and one that will be remembered by those present as the best ever held.

One of the special features will be a banquet supper on the evening of Dec. 15. This banquet is the gift of Messrs. G. C. Lewis, Watertown, Wis., and A. G. Woodman, Grand Rapids, Mich. A banquet, at which all the members get together, seems to add a finishing touch to any gathering; and we feel sure the beekeepers will show Messrs. Lewis and Woodman their appreciation by turning out in record numbers.

The program will be brimful of good things, and many of the notables of the beekeeping world will be there. A full program will be published next month.

The headquarters of the association will be the Eagle Hotel. This hotel has been our headquarters on many previous occasions, and is well known to the beekeepers. Rooms can be obtained from 75 cents up.

Many beekeepers do not attend meetings of this kind because they fail to realize their full value. The program alone will repay the trouble of attending, but this is only a part. The beekeeper who wants to learn more about his bees or about disposing of his crop of honey is usually able to obtain this information in personal discussions with the other beekeepers present. Send us your questions any time, and we will endeavor to answer them in a satisfactory manner at the meeting.

Every beekeeper in Michigan is invited to attend, and is expected to bring another beekeeper along and join with us in making the fiftieth annual meeting of the Michigan Beekeepers' Association "bigger'n ever."

East Lansing, Mich.



An apiary of ten colonies has been added to the farm.

SOME VANCOUVER BEES AND BEEMEN

BY BEVAN ARGYLE

Here is a view of part of the Dominion Government experimental station near Sidney, Vancouver Island, B. C. Mr. Samuel Spencer is in charge of the farm, which is situated at the northeast part of the Saanich peninsula. The usual test plots of cereals are well looked after, and the farm is now showing the good work of the superintendent in the fine ornamental shrubs and plants.

Last year an apiary of ten colonies of Italian bees was added to the farm. There are now twelve ten-frame hives with adjustable openings to regulate the entrances. Every assistance is given to the farmer and beekeeper by the official in charge. The photographs show two enthusiastic beekeepers. Mr. Walter Luney, one of the largest building contractors in British Columbia, is on the left of the picture. He finds a pleasure and an interesting recreation in his hobby. The beekeeper on the right is Mr. William Hugh, also of Victoria, B. C.

James Bay, Victoria, B. C.

DIFFICULTY WITH FALL HONEY A MATTER OF CLIMATE

BY J. D. FOOSHE

From the fact that some have succeeded in wintering bees on goldenrod and aster while others have failed, I think we are obliged to attribute it to weather or climatic conditions. When I was in South Carolina the goldenrod and aster were the only sources of fall honey, and in some years the heaviest flow of honey during the whole year would be from these sources; but I never had any difficulty in wintering successfully on them.

Sometimes when we had a rainy season in October the honey was slow to ripen, and a few colonies would have more dead bees about the entrance, under these circumstances, than when the weather remained dry and warm. I have extracted quantities of aster and goldenrod honey about the last of October, and still had plenty for winter stores; but very singular conditions prevail in this locality. I have been here now four years, and goldenrod and aster bloom profusely, yet I have never known bees to gather a single bit from this source. When they get their stores from cotton, peas, sumac, and other sources they seem to be done for the year. I am located in a very dry atmosphere. Peaches, grapes, and strawberries do well here, and I have never seen any disease on any of the fruit.

Augusta, Ga.

MAKING AN AIR-TIGHT FENCE

BY NOAH BORDNER



The windbreak fence can be seen in the background.

In the view of my apiary of 84 colonies, notice the windbreak. This is made by bolting a strip 1x3 inches on each side of the fence-post with a block 3 inches square and 1¼ inches thick, between the strip and post at the top and bottom end of the strip. By doing this I can slide all the boards in these slots in the winter without using a nail, and take them out in the summer to give all the air possible in the apiary. I used posts 5 inches thick, so it requires two bolts ½ x 10 inches to each post to reach through strips, blocks, and post.

Holgate, Ohio.

WINTER CASES—AN INTERVIEW WITH DR. E. F. PHILLIPS

BY L. A. P. STONE

A few months ago the members of the beekeeping fraternity were invited by Dr. Phillips, in Charge of Apiculture in the United States Bureau of Entomology, to call on him at his experimental station. Mindful of this invitation, while in Washington some time ago I decided to pay him a visit, and was more than amply repaid in doing so.

I began the conversation by asking his advice on what I consider the greatest problem to northern beekeepers, the problem of wintering. "What is best and in the long run, the cheapest wintering-case for protecting bees in the climate of Ontario?"

"I think that the quadruple wintering-case, such as is used by Mr. Holtermann, is best, except that it may be well to make the case high enough to winter the bees in two stories. My reason for the two-story idea is that, during our study of the question, I have come to the conclusion that it is far safer.

"If colonies are weak in going into winter quarters they are not an asset in any kind of case; while an ordinary strong colony, if wintered in two stories, well packed in a quadruple case, will build up stronger and steadier in the spring with two stories than with one."

The two-story idea was not entirely new to me; but still I had never had so able an authority as Dr. Phillips recommend it before, and I feel that it must, therefore, be well worth trying. I believe Mr. O. L. Hershiser told me that he had tried it with one or two exceptionally strong colonies, and was quite astonished at the splendid way the bees came through the winter. He seemed rather cautious in recommending it universally as was Dr. Phillips.

Another interesting point discussed in our conversation was one which GLEANINGS has discussed—degree of temperature at which bees winter best in their cluster.

"The temperature should be about 57 degrees Fahrenheit; and the better this temperature can be kept by the bees, the better the wintering; because, above this point, bees tend to brood-rearing, while below it the bees are forced to exercise to keep warm. Bees have little recuperative power, as do human beings, so this extra exercise only shortens their period of life. From my observation the quadruple wintering-case is best for maintaining this temperature, and

the more packing the better. There can never be too much packing.

"In regard to wide entrances in a wintering-case," Dr. Phillips continued, "these are harmful, because they expose the bees to heavy winds."

In continuing our intercourse, the subject of sweet clover came up. I could not help telling Dr. Phillips of the hostile attitude that the majority of farmers in Ontario have for this plant. Even at the Ontario Agricultural College the majority of professors were opposed to its general use, and condemned it as a noxious weed. Were it not for Professor Pettit I am convinced that sweet clover would never receive any mention whatsoever. I also told Dr. Phillips that in my own country, in spite of the protests of farmers who realized the value of this nitrogen plant, it was cut down along the roadsides along with thistles and mustards.

The doctor stated that the United States government had prepared a booklet on sweet clover, not overemphasizing its value to the beekeeper, but explaining its good qualities to the farmer. This booklet is to be had for the asking, and he suggested that it would be a good thing if every beekeeper would send for it and show it to the farmers in his vicinity.

Erie Beach, Ont.

CALIFORNIA SNAPSHOTS

BY CHARLES S. KINZIE

In my outyard illustrated the rows are seventeen feet apart with eight feet between the hives in the row. I call this my non-swarming apiary. The three rows are long, forty-five hives in a row, and the apiary is narrow. When the young bees and drones come out from 10 to 4 o'clock they do not become confused.

The apiary is in the sage foothills. I saw but one swarm from it this year. In my Orange Belt apiary I have my hives in a closed square, and had over thirty-five swarms from one hundred colonies. One day I saw a swarm come out about 1 o'clock when the drones and young bees were flying. I looked at the hive they came from, and there were only queen-cell cups. Excitement had brought them out.

My honey-store is located in my home. It has shelves and a large window in front to display the honey. Last year I sold three tons in this way—tumblers, quart cans, gallon and five-gallon cans, and in the comb.

The third illustration shows my automobile and trailer which I use in apiary work.

Arlington, Cal.



I call this my non-swarming apiary.

VARIOUS PLANS FOR WINTERING WHICH WERE SUCCESSFUL

BY W. D. SELLERS

As my increase is gathered in the shape of swarms from the farmers, so my opportunities each year to see how the bees have wintered are wide. About the time that the maples are in bloom I start to make my round among the farmers. Mr. A. last spring said he had saved all his bees. They were wintered in eight and ten frame hive-bodies—no absorbent material above them—just the cover glued down on the body.

Mr. B. said that he had lost one out of twenty colonies. His hives are eight-frame. He also uses no absorbent on top of his colonies. He had some air-spaced observation hives which showed up better than the ones in single-walled hives.

Mr. C. had not lost one colony out of twenty. His hives are all air-spaced observation hives wintered with sealed covers. Not seeing any bees working out of one of his hives I asked him whether it was alive, at the same time bumping my foot against it. I was again surprised to find the hive overflowing with bees.

Mr. D. had not lost a colony either. He wintered his bees in ten-frame hives with a super cover glued down on top of the hive-body with telescope cover.

The most of Mr. E.'s bees are in air-spaced hives, and some in ten-frame. He wintered his bees with the supers on, with partly filled boxes and comb. He lost one colony out of thirty-five.

Mr. F. has some 30 colonies, and had not lost one. He requeened with all young queens last fall, and wintered them with a wood-bound wire queen-excluder on top of the body, with a super of planer-shavings on top of this. We wintered with the ⅞-inch bottom-board turned up, and had the front of the board loose. He showed me some of his colonies by looking in under the frames. Some looked extra strong, some weak. He feeds artificial pollen early, and, later, sugar syrup.

The majority of beekeepers visited do not use absorbents at all on top of their hives, and I find that most of their colonies are storing during fruit bloom. Some of them never look into the brood-chamber from one year's end to the other. Their bees swarm every year, so they have fine large young queens with plenty of honey; and, not being disturbed, they raise large colonies of bees early in the season.



Last year I sold three tons of honey in my store at home.—See preceding page.

I visited another beekeeper, Mr. G. As he was not well, he was selling out his bees.



A trailer solves the problem for outyard work.

He had one colony left, and this one I looked over. It was wintered in a single-walled double-story eight-frame hive with 16 frames—8 below, 8 above. The colony was in better condition than any colony I found this year. This is the nearest thing to the old-style box hive which stood about 18 inches in height. These old-style box hives, single-walled, come out in the best of condition every year here. Colonies in ten-frame hives with a body of extracting combs on the top, put on early enough so the bees can glue them to suit themselves, and with young queens with plenty of stores, will store fruit-bloom honey in this locality if they are set in the sun well protected from the north and northwest winds early in the spring.

I did not lose a colony during the winter, but lost an exceedingly strong one early in the spring from dysentery caused by too strong a mixture of brown sugar with the white. A continued warm spell for a week would have saved this colony.

THE LEAN YEAR IN NEW SOUTH WALES

Sugar for Feeding an Impossibility

BY A. P. HABERECHT

Our past season has been one of the worst in the states; nevertheless it was just as I expected after last year's crop. In all my experience in Victoria and New South Wales, a bad season always follows a good one. What I call the "off season" comes about every seven years.

I extracted only 1740 lbs. of honey, which I really left in the supers from the season before last. I sold it all at 4 pence a pound months before I extracted it, and now I could get 8 pence for it readily. There is no honey to be bought here.

There are hundreds of colonies dying of starvation—no honey and no sugar to feed them. The most sugar a housewife can buy at a time is two pounds, and price is 3½ pence. Therefore the poor bees that have been unable to secure enough stores for their winter use are doomed to die of starvation. I expect the loss of bees in this district to be about a half next season.

My own bees, about 56 colonies, have plenty of stores to see them well into spring; but they are all unusually small, covering about three full-depth L. frames, and some perhaps only two frames. But I do not expect to lose more than about one-fifth of them. There is plenty of nectar for them to work on. The yellowbox is out in bloom, and the capeweed will be out at the end of this month, which gives abundance of pollen. On calm sunny days my bees will work just as they would in spring time for about four hours toward noon day.

I noticed no disease of any kind last season—no robbing, but wax or bee moth by the million. Although I never lost a single colony, I have lost many stored empty frames of comb.

Henty, N. S. W., Australia.

A DOUBLE-ACTING QUEEN AND DRONE-TRAP

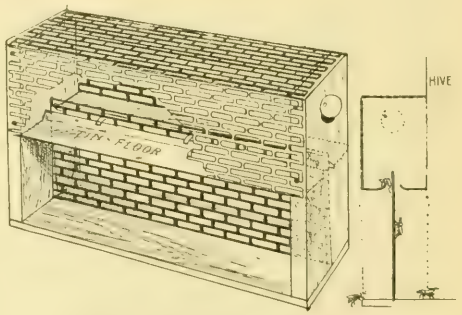
BY B. R. CURTISS

In order to construct a trap that will catch the dones and queens from both the hive and the outside at the same time, place the excluder in the center of the trap and have a passageway on both sides of the excluder leading up into the trap.

The excluder could be made in the new wire pattern with an enlargement on top of the upright bars on which to fasten the bottom of the trap.

In order to keep the drones from crawling out through the passageways it would be necessary to have the excluder extend up into the trap a short distance; then when the drones come to the opening, instead of going down they would crawl up over the excluder.

The trap would have this advantage: It could be placed before the hive at any time of day, and catch the drones that come in as well as those that go out.



Catching them coming and going.

Wallowa, Ore.

WINTERING WITH THE FOUR-COLONY CASE

BY A. J. KNOX

For a number of years I have wintered almost all my bees (in three apiaries) in the four-colony wintering-case. I do not know who was the first user of this case in Canada; but I had my interest awakened by a study of the case, illustrated and described by Ira C. Bartlett, of Michigan, and published some years ago in GLEANINGS.

My first dozen cases were made out of inch stuff. The hives were raised three inches from the floor, with packing underneath. They had six inches of packing space all around the sides, and ten inches over the top.

A winter's experience with these, where the snow completely covered them for several months, proved disastrous. In the fall I had leaned the covers over the entrances to protect them from the wind and snow. This, combined with the high temperature inside the case, under the snow, caused the bees to start brood-rearing too early, with the result that they came out (probably in search of water) into the cavity under the leaning cover, and, being chilled, never got back. When the snow melted away from the cases, bees could be shoveled up with a scoop.

After some correspondence with J. L. Byer I decided to make my future cases with only three inches of packing on the fronts, the rest remaining the same depth to set the hives directly on to the floor, close together, and with no packing underneath. Further, I now place no boards over the entrances, preferring to have the snow drift solidly around the cases and up over the entrances, keeping the wind out and the bees in.

Since that change, wintering has lost its terrors, for, with plenty of bees and feed, I have good results. At the Newcastle yard last winter, I lost only three out of seventy-five colonies.

I now have seventy-five of these cases in use, and most of them are made of ordinary clapboard siding rabbeted on the lower or thick edge. This makes a smooth inner wall at a minimum of lightness and cheapness. The cover is of half-inch pine lumber, made to telescope two inches, and covered with paroid roofing. The floor is of half-inch pine, nailed to four sills, one by four inches by the width of the case. The walls of the cases go together with hooks. The posts, three to a side, and one by two inches in diameter, rest on the floor, the walls running down half an inch lower, covering the floor, and thus shedding water.

The entrances are cut three-eighths by six inches, as wide apart as the bottom-boards of the hives will allow when shoved close together; and I find it well to have the entrance about an inch above the hive floor, to allow for lack of uniformity in depths of hive-bottom boards.

When set up, the case stands on two cedar scantlings three by five inches, which leaves the entrances about eight inches from the ground.

The cases are painted with red creosote shingle-stain at 75 cents per gallon. This seems to be answering the purpose as well as lead and oil paint, and is decidedly cheaper, and easier to put on.

The packing material used is planer-shavings. It is clean and easily handled, and mice don't work in it to any extent. Cut straw is bad on account of the mice, and leaves can never be obtained in sufficient quantities. Six two-bushel baskets of shavings are required to pack one case containing four ten-frame Langstroth hives.

In the yard the cases are placed in rows about eighteen feet apart, entrances facing east and west. The corresponding squad of hives is placed just four feet south, thus allowing working room between.

With this arrangement, and the packing all in the cases, it is a pleasant and simple job to pack up a yard, taking from thirty to forty minutes per case, with two men on the job.

To pack, start at the end of a row with an empty case. Dismount the case, lift the four hives of bees to one side, drag the floor over to the place recently occupied by the bees. Place the hives back on the floor in the same relative position as before; hook up the sides of case and put in the bridges. Then go to the next case in the row, scoop out the packing with two-bushel baskets, and dump into the case just prepared for it. You now have the next case empty, and ready to operate on as before. In this way you have no lugging around of cases, and no hauling of packing every year. I see nothing to prevent the packing from lasting twenty years, with the possible addition of a few extra basketfuls now and then. I use the same packing continually, for smoker fuel. Nothing else is equal to it, and certainly nothing so handy.

This plan has been worked out so that there is a minimum of labor and expense. By this arrangement the cases act as a screen or windbreak while working with the bees during the summer months.

In an exposed location it is necessary to put a screw-eye in the cover and case, on two sides at least, and tie on the covers. Hooks will not answer, as they jar out with the wind. Unless the wind goes over forty miles per hour, I find the covers need no tying down; but having suffered from high winds on two occasions, tying down is now the final touch in my winter preparations.

When the snow comes I prefer to see it drift around the cases; and if it does not, and there is any handy, I shovel it around the case. Snow is the best bottom packing to be had; and the best wintering seems to take place when the cases are covered with snow up to within a couple of inches of the top. This gives complete protection from the wind, and allows of upward ventilation through the packing. With the case completely covered with snow, especially during the latter part of winter, there is danger of too high a temperature in the hives for the best results.

Orono, Ont., Can.

WEATHER CONDITIONS IN WEST VIRGINIA

BY W. C. MOLLETT

The season which is drawing to a close has been one of the most peculiar for a great many years. It was dry here in February, and continued very dry till May. During fruit bloom the weather was warm and fine, and the bees built up very rapidly; but in May the rains began, and kept up with such persistency that the bees were upon the brink of starvation in the first half of June. Then just as the basswoods were coming into bloom the weather improved, and the flow from this source was remarkable for about two weeks, when the rains set in again worse than before.

The bees had made a fine surplus from basswood while the weather was dry and warm; but the rains interfered with the honey-gathering from the last of the basswood, and completely ruined the sourwood flow, as it was so wet and cloudy that the bees could not fly for a long time. From July the rains continued till September 1, and the bees were again in danger of starvation, and again the weather improved just as the fall flowers were coming into bloom.

For about ten days the bees carried in nectar as fast, almost, as I ever saw them from basswood or any other source; but again the cold wet weather set in, and there was no honey-gathering for several days until the fall flow was almost over. At the winding-up of the nectar-gathering the weather was fair and the bees were enabled to work quite strongly upon the last of the aster blooms.

I do not think they will have quite enough to carry them through the winter; but I have seen them in worse condition at this time of the year. It is usually safer to feed some here rather than to take chances, as the consumption of stores during mild winters is something surprising. I am sure that, for outdoor wintering, which is the only way here, it will take about fifty pounds to winter an average colony. Although the weather conditions as a whole were very discouraging here, the bees secured a surplus of at least thirty pounds per colony, which is not as bad as it might have been.

I notice that the same conditions prevailed in most of the white-clover regions, so that possibly the crop may not reach anything near that of average years. In localities that sometimes have a heavy rainfall the bee business is liable to be affected by the wet and cool weather almost any season and for this reason the beekeepers are apt to become discouraged, and quit the business. However, if one season is bad the next is likely to be better, as the weather usually keeps a pretty close balance. We are sure to have a bad season now and then, but in the long run we are very liable to come out all right. There is no cause for discouragement.

Stonecoal, W. Va.

A St. Louis Summer

This has been a peculiar season, I should say, though my experience goes back only three years. It has been supers one week and feeders the next. The white clover began to bloom about May 24, and is still in bloom. Very little honey has been secured from it, both on account of the lack of nectar and the bad weather.

Yesterday I saw bees working on white clover and smartweed in the same field. The past week has been the best one of the season, and I look for fine fall weather and a good flow from now till frost; and if the asters yield as they did last year I shall have enough to winter the bees and then some. My bees wintered in good order on the aster honey, though I had a large proportion of colonies queenless in the spring. That set them back; but they are nearly all in fine condition now. I have eleven colonies at present.

Webster Groves, Mo., Sept. 7. F. A. COLDWELL.

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

These city people are mighty particular about some things. Last summer when the bees were working on milkweed a man on Main Street put door mats down in front of the hives so they could wipe their feet.

A Telegraph Operator's Bees

We have had but very little sunshine this season, and the crop was almost a complete failure here. The early flow was of a fine flavor, but the later honey was almost like water and of a mint flavor. Although I had 8 colonies to start with this season I got only about 50 pounds of honey from them. It was of a dark color from leaving it in the hive so long because it was not finished. I sold every section for 20 cts. each, and could have sold many more if I had had it. I did not get out and try to sell any for I did not have it. They all came to me after it. I often think if the beekeepers would only ask a little more for their honey they would sell almost as much.

I am a telegraph operator for the Pennsylvania Company. I have a second "trick" from 3 P. M. until 11 P. M., and have always had a desire for bees, as it makes a good side line. It seems as if I lose almost all of my bees every winter from cold weather. I had a little experience with American foul brood three years ago. I burned hive, bees, and all; also buried the ashes pretty deep, and have had no signs of it since.

I have read every article I have seen on how to prevent swarming. I have not tried any of the plans, for I believe natural swarming is the best way to make increase, and I do not believe there is anything that will prevent the bees from swarming, or at least trying it. I had a swarm come out Sept. 7, this year, but they went back and saved me the trouble of putting them back. That is the fourth swarm since July 1. Three of them came from young swarms hived the last of June this year. I say it is the nature of bees to swarm, and their only way of increase, and there is no way to prevent it totally, although plenty of room and a little shade will prevent it to a certain extent.

Bradford, O., Sept. 7. CURTIS C. GROOMS.

175 Swarms from 70 Colonies, Spring Count

After keeping bees over 65 years I find I know but little about them. I always thought that if I had ten empty hives to 100 colonies I had plenty; but it was different this season.

On the first of June I had 70 hives with few bees in each. I had them all plugged up to one bee-entrance, and hardly a bee stirring. About July 1 I had a swarm off, and I began to examine them, and I found them loaded with brood.

About July 15 they began to come off, and I had 40 swarms in four days, and I never saw them get honey faster. They kept it up until September. I have 174 colonies now, and I presume I have lost 12 or 15, which got away to the woods. Eleven had been found within two miles.

I secured about 5500 lbs.—not a big yield if there had been a good lot of bees and no swarming. It all sold as fast as taken from the hives. I never saw nicer honey—no travel-stain nor water-colored sections.

I had in all something over 175 swarms. I doubled them up all I could—three swarms in some of the hives. The colony that swarmed first I moved to a new place, and hived the swarm on the old stand. The parent colony made me over 100 lbs. of comb honey, and then swarmed again about the middle of August.

West Rupert, Vt., Sept. 6. C. M. LINCOLN.

The Tenement Hive for Summer as Well as for Winter

I have used the four-hive case exclusively since 1885. I soon saw the folly of unpacking the bees for the summer. If the frames are as movable as they should be they may be quickly taken out just as well from the hives in the case. If large loose sawdust cushions remain on all summer the conditions are ideal; for the hives are cool during the hottest part of the day and warm during cool nights. In actual practice I seldom see bees doing very much fanning.

The case should be 30 inches deep so as to hold two supers at least. The roof should be half pitch, and the large gable should be open in summer. The roof should project over the sides at least ⅞ inch. For convenience I have the upper half of the case hinged. I use no packing under the hive.

Little Britain, Ontario. R. F. WHITESIDE.

The Cause of Late Swarming

In regard to late swarming, my bees have not developed this abnormal condition for several years; but I have had many swarms in August and September—one as late as September 28.

With my bees, this unnatural swarming mania developed just after a short heavy honey-flow which suddenly stopped. Foundation was drawn out in supers in anticipation of a harvest which never came. Every swarm came out with a most stubborn determination to abscond. Reasoning from these two

facts, I decided that it was disappointment and disgust over the failure of a promising honey harvest that caused the late swarming. The migratory instinct is strong in bees under normal conditions; and when for any reason they become discouraged and dissatisfied with their environment, is it unnatural or natural that they should "Seek fields anew and pastures green" even at unseasonable times?

I find no bad results following late swarming if care is taken to see that no colonies are left queenless or too weak to stand the winter.

Aurora, Mo., Oct. 6. FRANK M. MCMURRAY.

Raising the Price of Honey

We have been producing honey for only two years, but have had fair success in establishing a local market. I believe there are a great many beekeepers shipping their honey to distant markets and not supplying their own town. Shipping honey to distant cities is not only very expensive for high freight and express charges, but the loss by leakage of comb honey is sometimes great.

We have been selling our honey mostly to consumers. Our competitors sell their honey for 15 cents per lb. We sell ours for 20 cents just as easily. One lady told me the reason she preferred our honey was because she knew it had not been exposed to flies. I assured her that our honey was produced and handled under strictly sanitary conditions. This alone will go a long way in selling honey to women, as they realize the importance of sanitation.

There has been a great deal said in the bee-journals about maintaining the price of honey. But we decided to raise the price five cents a pound at the very beginning.

Oak Grove, Ky. BRYAN STROUBE.

Why Requeening Does Not Always Regenerate

In my experience of requeening habitually poor colonies I have frequently found that the new queen does little or no better, and I have had colonies that, while they were given a new queen every year, remained useless to the end. I have not tested this myself, but I think I have now found the reason.

A colony that is always in a poor condition is so because the bees commencing from the larval stage have not been fed properly, and they in turn do not feed the new queen's larvæ in a proper way; consequently, when the new bees hatch they lack vigor, and so this goes on all the time. The remedy for this would probably be intensive feeding for fully three months after requeening, which might force the old bees to establish a vigorous progeny; but I am doubtful, as their way of rearing their young may be constitutionally bad.

FRED B. HOOPER.

Liguanea, Jamaica, B. W. I.

A Queen Whose Eggs Fail to Hatch

I have in my possession a supersedure queen that commenced to lay about July 10. Four weeks later I noticed that this colony was slowly dwindling away, and on examination found five frames containing eggs but no larvæ. I transferred the queen to a queenless nucleus and gave the colony a good queen. Both were accepted without challenge. I have kept the queen ever since for observation, but to date not an egg has hatched.

I have had about everything in the line of freak queens, but this is a new one. Do you know of a similar case?

Berea, O., Oct. 4. W. H. DANALDS.

[It sometimes happens that a queen that has been laying fairly well, and whose eggs have hatched, will later fail to hatch; but when that takes place such a queen is of no further use. It is more common, however, to find a young queen that lays regularly whose eggs will not hatch and never did hatch. Of course, such queens are worthless and should be destroyed; but it is rather uncommon to find a queen whose eggs have hatched regularly and then later on fail to do so.—ED.]

Uniform Success with Winter Cases

For four years I have used tenement cases for two, three, and six hives, and have had uniform results. In the winter of 1913 I wintered one yard of thirty colonies with a very small loss. In 1915 I wintered fifty-six colonies with a loss of four. I could not see any difference in the different sizes of cases. My cases are built so the entrances are all in the same side of the case and facing south.

Kirkwood, N. Y. J. STUART SCOFIELD.

How to Handle Laying Workers

When a colony contains laying workers, move the hive about thirty or forty feet and put in place of it another hive containing a frame or two of brood and a queen, together with empty frames. Then shake all bees from frames in the old hive on to the ground, removing the hive and frames. The bees shaken will at once go back to the old stand and the new queen. The laying workers are either too heavy to return or are treated as intruders and destroyed. I tried this with one colony, and it worked perfectly. These instructions were given me by one of our state inspectors, Mr. Charles Stewart.

Palmyra, N. Y. G. H. PARKER.

A Satisfactory Cellar

The cellar I made for my 74 colonies is 6 x 10½ x 6 ft. There are 18 inches of sawdust between the inside casing and outside. Ventilation is through the center of the room at the top.

As we have sand here it did not need a wooden floor, only the earth. Two doors, one outside and one inside, keep the frost out and allow me to look at the cellar at any time. The temperature keeps about 45 degrees, never below 42, and not often over 50.

There was some dampness which can be prevented. The bees remain quiet the entire season in the cellar.

Last year they were put in December 9. A two-inch rim was placed between the hive-body and the bottom-board. Both the covers and the bottoms were left on, and the two entrances left open—one at the bottom-board and the other between the rim and the body.

Grand Rapids, Wis. CHARLES PRITCHARD.

Never Too Late to Treat Foul Brood

Is it too late to do anything for European foul brood this season?

Ladd, Ill., Sept. 29. JOHN WOLF.

[It is by no means too late to do something for European foul brood this season. In the first place, we would recommend you to Italianize all your bees with the very best Italian stock that you can secure. Generally, you would get better results with leather-colored: but some strains of bright or golden Italians are just as good for resisting European foul brood. This is the initial step to cure European foul brood. You may not have to do anything more next season than to dequeen for about ten days, and then let her loose again. See Dr. Miller's directions given in a recent issue of GLEANINGS.—ED.]

A. I. Root **OUR HOMES** Editor

To this end was I born, and for this cause came into the world, that I should bear witness unto the truth.—JOHN 18:37.

No weapon that is formed against thee shall prosper; and every tongue that shall rise against thee in judgment thou shalt condemn.—ISAIAH 54:17.

Fear thou not, for I am with thee; be not dismayed, for I am thy God; I will strengthen thee; yea, I will help thee; yea, I will uphold thee with the right hand of my righteousness.—ISAIAH 41:10.

When I was about ten years old, on coming into the schoolroom one morning, I, with the other pupils, was wondering what a certain sentence on the blackboard meant, written in a beautiful hand as follows:

'Magna est veritas, et prævalet."

When the teacher came he explained to our curious and inquiring minds that a friend of his, a college graduate, had just paid him a visit; and while in the schoolroom he picked up a piece of chalk and wrote that motto. He said it was Latin, and when translated into our language it meant "Great is truth, and will prevail." During that whole day many curious eyes were cast now and then on that beautiful specimen of penmanship. I always had a love for language and words; and even at that early age I decided that the word *magna* meant something like our word *mighty*—truth is mighty; and the word *veritas* I figured out meant something like our word *verify;* and the last word, *praevalet,* it was easy to guess, meant to prevail or become established. And all along these 65 years I have wondered again and again if the truth will finally prevail over falsehood and tangled-up intrigue.

In our temperance work, the liquor party will get hold of a little bit of truth. They exaggerate and twist it, so that sometimes even good and honest men get rattled. A few days ago while at our dentist's he asked why the Y. M. C. A. of Medina Co. gave up its regular meetings during hot weather. He asked me if I ever heard of *Satan* taking a "vacation" because the weather was hot or business was dull. And I am not sure but that at such a time, when people are off on an excursion, or are taking a vacation somewhere, it is the time when Satan gets in his best licks. *He,* at least, is untiring.

On p. 333, Minnie J. Ellet tells us that a Summit Co. liquor-license commissioner said Kansas was finding prohibition a failure, and that Kansas would have to go back to license, etc. Well, this story has gone out far and wide; and although the people of Kansas, and especially the governor of it, has taken every precaution to have it contradicted, it is almost impossible to keep up with the lie—a lie made out of whole cloth; for, so far as I can learn, there was no foundation at all for such a newspaper falsehood. It seems to verify the old saying that "a lie will walk around the earth while Truth is pulling on his boots." With all the methods of communication, with our magazines, weekly and daily papers, telegraphy, including wireless, is it going to be possible to contradict the falsehoods and keep *truth* before the people? Years ago it was my privilege to listen to a talk from Anthony Comstock; and we frequently have newspaper notices that he is still alive and protecting our people, especially our boys and girls, from something that may be even *worse* than strong drink—from something that usually goes hand in hand *with* strong drink, and which would hardly keep alive if it were not for the help that it gets from saloon-keepers. All along during Comstock's faithful service, every little while a report is started, saying that the Postoffice Department has dropped him or given him up; and lately it has come out in the papers once more.

The Sunday School Times of a recent date, when commenting on the matter, had the following:

"THE FALL OF COMSTOCK."

That was the headline of a recent newspaper editorial.

For Anthony Comstock has had a fall.

But he has fallen on top of his enemies.

And Mr. Comstock is a very heavy man.

His feet are not small. And when he falls, he has a way of landing squarely on both feet, with his enemies underneath.

It hurts when Anthony Comstock falls.

But it doesn't hurt him.

You'll be interested in reading the Open Letter story of his "fall."

Then you'll want to know how it is that for more than forty years Comstock has landed on his feet.

He has had more savage enemies than almost any other man in our generation.

They've tried to bribe him, to discredit him, to kill him; and they couldn't.

His life-story is one of the most thrilling tales of adventure ever written. And it shows the miracle-keeping power of our God.

The enclosed is a clipping from an editorial in a recent issue of the daily in this city. Will you please tell me the story of the "Fall of Comstock"? I cannot believe it can warrant such a title.—A CANADIAN READER.

The Canadian newspaper article was similar to others that appeared in various parts of the United States last month, to the effect that Anthony Comsock, Secretary of the New York Society for the Suppression of Vice, was to be removed from the position of Postoffice Inspector that he had held for more than forty years. The reasons hinted at for his al-

leged removal were, of course, as has been customary in most newspaper comments on Mr. Comstock during the past generation, sharply to his discredit. As the Canadian paper editorially said: "He has been more laughed at, more anathematized, than almost any man of our times. . . Now that he has received his first real defeat it is well to pause and realize that his faults are those which invariably go with high qualities and frequently make high qualities effective. The achievements of this ruthless vice-hunter far outweigh his mistakes, and his retirement from any of the activities would be something of a public calamity, not a cause for exultation."

But, fortunately for the public, this "first real defeat" of Anthony Comstock is like many another of the "real defeats" that have been heralded as bowling him over during the past forty years; it turns out to have been the defeat of his enemies, not the defeat of Anthony.

As some of the newspapers have already announced, Mr. Comstock's official appointment as Postoffice Inspector has not been revoked, and it is not likely to be. In a recent personal letter to the editor of *The Sunday School Times* he wrote:

> I had a very delightful interview with the Postmaster-General and Chief Inspector at Washington yesterday, and I am still a Postoffice Inspector, and expect to remain so for some time to come. I do not think there has been any change contemplated by the Chief Inspector.

Anthony Comstock hates vice, and lovers of vice hate Anthony Comstock. But he is loved by many others for the enemies he has made, and that he will continue to make as long as his invaluable life is spared to do to the death the ghastly and soul-destroying traffic against which, in the strength of God, he has for almost half a century flung himself and all his God-given resources.

The present newspaper flurry reminds one of the attempt made a few years ago to end Mr. Comstock's official activities when he had stopped a certain art organization in New York city from its promiscuous circulation of objectionable matter. In December of that year an effort was made to have him removed as Postoffice Inspector. The following account of the incident is given in his authorized biography:*

> When he learned of this attempt, Mr. Comstock went on to Washington in person to see Mr. Cortelyou, then Postmaster-General. Mr. Cortelyou was sitting at his official desk when Comstock's name was brought in by an attendant. Instead of sending for his caller, the Postmaster-General arose from his desk, walked out to the reception-room, and took Mr. Comstock heartily by the hand. Walking back together to the private office they talked the matter over, and Mr. Cortelyou said:
>
> "Mr. Comstock, I have never had a thought of not reappointing you. But you're a veteran, and I have a right to appoint you under the Civil Service rule. I am going so to appoint you, and now I am going to give you a salary whether you want one or not." Mr. Comstock had, it will be recalled, served since March 5, 1873, as an officer of the Federal Government without pay, this having been done at his own request. It is a question whether any other man living has any such record. At Mr. Cortelyou's insistance he now consented to receive a salary from the government, the first that he had ever taken. And the newspapers published the statement that the Postmaster-General had refused to reappoint Mr. Comstock!
>
> The vindicated lover of purity has said quaintly, in comment on this experience:
>
> "You fellows who are sowing seed don't know what the rays of the sun are on the back of the weeder."

* Anthony Comstock, Fighter: Some Impressions of a Lifetime of Adventure in Conflict with the Powers of Evil." By Charles Gallaudet Trumbull. To be had from the Sunday School Times Company, 1031 Walnut Street, Philadelphia, at $1.25 net.

Because Anthony Comstock is alive and at work the young people in high schools and boarding-schools are prevented from receiving through the mails reading matter and pictures of a sort so vile that many readers of *The Sunday School Times* have never imagined such things could be in existence.

Because Comstock is alive and at work, decent persons on the street and in stationery stores are saved from the insult of having thrust before them unspeakably vile pictures and books that a generation ago were a common matter of sale in such places. And young men and others who are easily appealed to and dragged down by the infamy of this sort of vice traffic are saved from that attack upon their lives and souls.

His relentless and long-continued warfare against this traffic has made Mr. Comstock a mark for assassinating attempts upon reputation, character, and his physical life during all these years. But he has quietly rested upon the word of God: "No weapon that is formed against thee shall prosper; and every tongue that shall rise against thee in judgment thou shalt condemn. This is the heritage of the servants of Jehovah."

As showing his continued and successful activity, even at seventy-one years of age: Since the first of this year the New York Society has made 67 arrests, and has seized 1583 obscene books. 13,512 obscene pictures, 123 negatives for making pictures, 445 advertising circulars, 7233 articles of illicit traffic, 942 lottery schemes, 34,650 lottery tickets, and 452 lottery prizes. Some years ago his total work represented the destruction of nearly 50 tons of vile books, over 25,000 pounds of stereotype plates, 2,050,000 obscene pictures, and over 12,000 negatives.

A beautiful expression of the simple-hearted faith in God that has been Anthony Comstock's safekeeping and victory is found in the following statement of his personal experience that he once made to the Editor:

> "You are in the surging billows, and all you have got to hold on to is a little thread anchoring you to the pier, and it's very frail, and you're afraid it will break. And then it does break—it is self, and you're about to go down. Just then you hear, 'Fear thou not, for I am with thee; be not dismayed, for I am thy God;' and you see a strong cable thrown out, and you lay hold on it, and feel safe again. And when your hands grow numb, and you fear that you'll have to let go, you find that some one has put it under your arms and around your body, and you *cannot sink*."

That is Mr. Comstock's idea of God's keeping as he has tested it.

Just a word in closing in regard to our last text. During the past winter Mrs. Root's only brother was taken away. I wrote to the sister-in-law, offering her some words of consolation, and asked her if she was clinging closer than ever to God's precious promises. She wrote back and quoted the words, "Fear not, for I am with thee; be not dismayed, for I am thy God," etc. She said she found the words in a newspaper at the very time when she needed them most; but she said she had searched her Bible in vain to find them, and asked me if I could tell her where to look. I found them in Isaiah 41, and the circumstances brought out this wonderful promise in a new and hitherto undiscovered beauty and grandeur. No wonder Anthony Comstock has "prevailed" and kept up, for he is resting his life and faith on such promises.

Since writing the above we have received the sad news that our vehement and energetic friend has been called to his reward. We clip the following from the Medina *Sentinel:*

Anthony Comstock, the store porter who became a national figure by fighting obscene books and pictures, is dead at 71 years, after a crusade lasting 43 years. In that time he imprisoned nearly 3060 people for impairing morals, and collected nearly a quarter of a million dollars in fines.

Still later.—Today is Oct. 5, and I hold in my hand the *Menace* for Oct. 2. This paper makes mention of the death of Anthony Comstock, but, unlike the other periodicals I have come across, they severely criticise our departed friend. In fact, I should not want to put in print the things said about him—at least not in GLEANINGS. As an illustration of their *mistaken and unjust* statements, let me quote just one paragraph:

"*All his life, after he fastened himself to the federal payroll, he was a professional blackmailer.*"

How does the above sound when we are told in the article from the *Sunday School Times* that Mr. Comstock absolutely refused *any* salary as an officer for the federal government since 1873 until finally the Postmaster-General declared he was going to give him a salary from then on, whether he wanted one or not? Now, if the *Menace* is as far from the truth in other statements —statements made without knowing the real facts in the case, how much allowance should we make for what we find on its pages? It seems that Anthony Comstock decided that the *Menace* was infringing on the Comstock law, not only once but several times. You know we are told that "the law is a terror to evil-doers."

We also give place to the following from the *Rural New-Yorker:*

Anthony Comstock, secretary of the New York Society for the Suppression of Vice, died at his home at Summit, N. J., Sept. 21, aged 71. He was a native of Connecticut, a veteran of the Civil War, and was first aroused to his life-long fight against vice by the free dissemination of indecent literature among the young. In March, 1873, the so-called "Comstock law" was enacted by Congress, and Mr. Comstock became an inspector in the postal service. In that place he put a stop to the dissemination of obscene matter through the mails, and also to the circulation of lottery tickets, fraudulent advertisements, etc. The present efficient system of investigating and checking fraudulent transactions through the mails must be credited chiefly to him.

We close with the following, clipped from the *Sunday School Times* for Oct. 2:

Weapons, threats, physical attacks of fiendish ingenuity and effectiveness, could not intimidate him. He quietly accepted God's promise as a personal word to himself. "No weapon that is formed against thee shall prosper," and went about his business letting God prove this to the confusion of his enemies. Neither could men appeal to covetousness in him, as they sought to do. When he was running the famous Louisiana Lottery out of New York, where it had done the flourishing business of taking in over $5000 a day, he was offered $25,000 a year if he would simply cease to interfere with the company's work. When he declined, they tried still more enticing bribes, the only result being that, as Joseph Cook later wrote, mortal wounds were inflicted "upon the Louisiana Lottery, and now that Devil Fish of the Gulf is in the agonies of dissolution."

We are today living in a land that is comparatively free from open traffic in things that a generation ago were making their infamous appeal to the eye and mind of school children, and of young men in business, and of older people; and this is so because Anthony Comstock lived out his life in self-surrendered and successful conflict with that evil. May God raise up others who shall fight as faithfully as he did.

A PRAYING PRESIDENT.

Some good friend has sent me a clipping from the New York *Times* which reads as follows:

"When the President arrived at the Cabinet meeting," said Bishop Anderson, "his face wore a solemn look. It was evident that serious affairs of the nation were on his mind. He said to the Cabinet members: 'I don't know whether you men believe in prayer or not. I do. Let us pray and ask the help of God.'

"And right there the President of the United States fell upon his knees, and the members of the Cabinet did the same, and the President offered a prayer to God. While the war rages in Europe, we in this country should thank God that in this crisis of the world we have a Chief Executive who is a servant of God who stands with his hand in the hand of God. Every minister in the land should, every time he offers a prayer, take Woodrow Wilson by the hand and lead him into the presence of God, and ask that he be given strength to continue to be the great apostle of peace among men."

There was a chorus of "amens" from the ministers. Later a telegram expressing the confidence of the delegates in him was sent to the President.

May God grant that the president who shall come after President Wilson may be also a God-fearing man, and one who has faith in prayer.

THE LIE AND THE LIAR—WHAT SHALL WE DO WITH THEM?

We clip the following, by Robert E. Speer, from the *Sunday School Times:*

A nation which tells or does lies starts off foredoomed to judgment. We need to see and to drive the lie and the liar out of our national life.

Perhaps our readers will recall what I have several times mentioned, that the *Sunday School Times* says "a lie is *always* wrong." In another place they say "*deception* is always wrong." May God hasten the time when not only individuals but nations shall find out the truth of the above and accept it.

TEMPERANCE

The most dangerous trust is the liquor trust. It is a combination of gold without God, cash without character, silver without soul, and power without principle.—REV. JAMES GORDON, D.D., Wheaton, in *Ohio Messenger.*

THE TRUTH ABOUT THE LIQUOR BUSINESS.

Today, Oct. 22, there is such a pile of leaflets and bulletins afloat, both for and against the liquor-traffic, that it may trouble many people to separate truth from falsehood. Please bear in mind, friends, that the wets have no object in view except to gather in a little more money. They have no interest in the good of our nation and in the matter of trying to elevate poor weak infirm humanity. In our effort to set the people right, especially the people here in Ohio, I want to make three extracts from the *American Issue;* and please remember that these extracts have the indorsement of our schools, our churches, our railroad companies, our manufactories, our farming communities, and, in fact, all good and unselfish people not only here in America, but I might almost say of the whole wide world. Read this and ponder.

WHY OHIO LIQUOR MEN SAY NOTHING ABOUT THE SALOON; SALOON SO BAD IT CANNOT BE DEFENDED

Not a word about the saloon in any of the wet literature or on any of the wet posters!

Did you know that?

Do you hear wet speakers mention the saloon or attempt to defend it?

You do not.

Why is it that the wets are silent about the very thing they are fighting to maintain?

Why do they talk about everything else, but so far as literature and speeches are concerned seem ignorant of the existence of the saloon?

Is there a reason for this silence?

There is.

The saloon is such a gigantic evil that even its name is distasteful to the people, and this holds good with many wets as well as with the dry.

The more attention is directed to the saloon, the more its ugly and unamerican character is revealed, and the more dry votes will be cast.

No class of men know this so well as the liquor men.

So there is a general understanding in the liquor camp that the word "saloon" is not to be used.

SOPHISTRIES OF OHIO LIQUOR MEN ANSWERED IN A FEW SENTENCES; THEIR STOCK CLAIMS, ASSERTIONS, AND PRETENDED ARGUMENTS ARE FLIMSY AND FALSE, AND ARE EASILY DISSIPATED BY FACTS AND COMMON SENSE.

The wet official argument against prohibition speaks of Ohio liquor manufacturers "with more than 100,000 employees."

Government figures give the total number of employees of Ohio liquor manufacturers, including wage earners and male and female clerks, as 5517.

Which is right?

Paid wet advertisements gladly say that under prohibition Ohio property values "aggregating $16,000,000 would be thrown into the scrap heap."

Government figures give the total capitalization of all the breweries, distilleries, and wineries in the state at $64,459,624, and this includes millions of watered stock like the Hoster-Columbus Associated Breweries, which was incorporated at $12,000,000, and paid taxes on a valuation of a little more than a million and a half.

Which is right?

"Prohibition has not settled the liquor question anywhere it has been tried," says a wet advertisement.

What about the 19 states that now have prohibition? What one of them is even considering going back into the wet column? What about Kansas, for instance, which has had prohibition for 35 years and likes it so well that last fall the wet candidate for governor polled only 6 per cent of the total vote, while all political parties endorse the prohibition policy?

Is not prohibition the only policy that does settle the liquor question?

"Prohibition would mean the loss of $15,000,000 in taxes to the state of Ohio and its political sub divisions," says a wet advertisement.

Not at all. Ohio plants which now manufacture beer and whisky would, as in other states, be transformed into packing-houses, ice-plants, milk-factories, and other productive institutions, employing more men and paying more taxes.

"Prohibition would increase your taxes," says a wet advertisement and the wet speakers.

Figures of the United States Census Bureau show that in prohibition states general property taxes collected average $10.12 per capita, while in licensed states they average $16.98 per capita.

Which will you believe—the unsupported claim of the wets or the official figures of the government?

"Prohibition takes away from you every vestige of personal rights." Quoted from a wet advertisement.

It does not. It takes away from the liquor-dealer the right by sufferance of selling poison. The United States Supreme Court says he never had an inherent right to sell the stuff. It does not take away the right to use, but to sell. You have the right to eat rotten meat, but you do not have the right to sell it.

"Prohibition would deprive thousands of workingmen of the livelihood for which they have fitted themselves," says the official argument against prohibition.

A few hundred will cover the entire number of brew-masters, rectifiers, etc., in Ohio who have "fitted themselves" for special work in the liquor-traffic. The driver of a brewery-wagon can drive any other kind of wagon; the maker of beer-kegs can do any kind of cooperage work; makers of beer-bottles can make milk or any other kind of bottles.

Remember, however, that the thousands of men in Ohio who have lost their jobs through drink are down and out for good, unless prohibition comes to their rescue. Prohibition will give these men another chance.

"The state will suffer a financial panic if prohibition is adopted," says the wet argument against prohibition.

Bosh! Who ever heard of a panic resulting from stopping a waste of money? Instead of worse than wasting the $110,000,000 now annually spent for liquor in Ohio, spend that sum in lines of legitimate trade; and instead of a panic there will follow an era of prosperity such as Ohio has never known.

"Ohio cannot afford to lose the $6,000,000 now paid the state, county, and municipality in liquor-license fees," say the wets.

[illegible] revenue. This license revenue equals $1.20 for each man, woman, and child in the state. The drink bill for a year equals $22.00 for each man, woman, and child in the state. Ohio squanders $22.00 per capita to get in return $1.20 per capita. She is out of pocket on this exchange $20.80 a year for each man, woman, and child. Add to this the cost of caring for the product of the saloon, and the actual loss is at least double the sum here quoted.

"Ohio cities and towns cannot afford to lose the saloon revenue which is now applied on their taxes," says wet literature.

The more liquor revenue Ohio cities and towns receive the greater their burden of taxation and indebtedness. Cincinnati now has a bonded indebtedness of more than $60,000,000, and a tax rate approaching the limit, and yet she receives $400,000 a year in saloon revenue, and faces a half-million [illegible] Her bonded indebtedness is $165 for each man, woman, and child. Kansas has no revenue from saloons, and her bonded indebtedness is less than 10 cents for each man, woman, and child.

"Prohibition in Ohio will lose the farmers a valuable market for their grain," says a wet advertisement.

Only about 1 per cent of the grain of the country is used in making liquor. As the dry area increases, the price of all farm products advances, because more people have more money to buy everything the farmer raises.

"Bootlegging will be encouraged and speakeasies will increase if prohibition is adopted," say wet speakers and liquor advertisements.

The annual report of the Ohio Liquor Licensing Board bears out the contention of the drys that license fosters speakeasies. That report shows that fines imposed on liquor-law violators in the 45 dry counties totaled $14,850, and in the 43 wet counties $41,360. The wets themselves say there are as many speakeasies in Cleveland as licensed dealers, and the saloonkeepers of that city appealed to the Governor last year to protect them from the horde of illicit sellers.

ASSOCIATED BY WET ARGUMENT

The first Sunday Chicago saloons were closed, arrests for drunkenness fell from 243 to 63, while the crime record was the lowest in the city's history. There is no better evidence than this that the United States Supreme Court was right when it declared the saloon to be a source of crime and misery. Chicago's record of a closed Sunday answers [illegible] by the wets in favor of the liquor traffic.

MODERATE DRINKING AND PROHIBITION.

The great argument—in fact, almost the *only* argument the wets try to make, after being driven into a corner all over the world, is that moderate drinking is better than downright prohibition. They are claiming at this date, Oct. 20, most solemnly, that a man can do better work, and enjoy more health, by a moderate and reasonable use of intoxicants; but the reports from our factories, railroad companies, schools, colleges, and everywhere else, are now coming like a mighty flood to prove the contrary. In fact, this great flood is daily gathering weight and volume to swell to an extent that any use of intoxicants, *even in small quantities*, must and will be driven not only from the United States, but from the whole face of the civilized world. Our magazines and periodicals of every sort, unless it is those that still hold on to their liquor advertising, are coming forward in every issue showing that intoxicants in any shape for old or young are always damaging and nothing else. Here is something that I am glad to see in the *Outlook:*

ALCOHOL AND EFFICIENCY.

One of the significant and unexpected results of the new campaign for scientific efficiency in industry is the movement against alcohol. On several occasions *The Outlook* has called attention to this movement. Now comes the report of the Methodist Temperance Society, indicating how widespread is this movement.

This society has made a careful investigation of conditions in the iron and steel trades of Pennsylvania, Ohio, Illinois, and West Virginia. It finds sixty-three large concerns that have taken steps to determine the influence of the moderate use of liquor on working efficiency. Without exception these firms testify that the effect is bad. These corporations include such firms as the Youngstown Sheet and Tube Company, the Harrisburg Pipe and Pipe Bending Company, and the Illinois Steel Company. Eighty-three of the concerns questioned, in employing and advancing men, discriminate against those who use alcohol. To quote one of them, "Even the most 'moderate' use of alcohol is fatal to a man's chance of advancement." Among these eighty-three firms are the Oliver Chilled Steel Plow Works, the American Steel and Wire Company, and the Pennsylvania Steel Company. Ten great concerns have prohibited absolutely the use of alcohol on the part of employees. Among them are the Reading Iron Company, the American Sheet and Tin Plate Company, and the Lukens Iron and Steel Company.

Under the old rule-of-thumb management this situation would never have come about. The effect of alcohol on efficiency would never have been known exactly. But when the new and supposedly infallible methods of efficiency at times failed, the resulting investigation into the cause showed that it was due to individual unfitness caused by the use of alcohol. And when it was shown that even a little alcohol—as little as might be in two glasses of beer—was the cause, the result was inevitable.

In the scientific plan of efficiency it is necessary, to use a military phrase, to hit the bull's-eye every time. A bullet in the first ring won't do. In such circumstances a workman need not be anywhere near intoxicated to be inefficient. A glass or two of beer makes the difference between a bull's-eye and a shot in the first circle.

The new plan of efficiency is so profitable to both employer and employee that whatever stands in its way must go. Economic necessity is making converts to prohibition. The Methodist Temperance Society's report shows how fast men are moving in that direction.

May God bless the Methodist Temperance Society.

Since the above was in type we find the following in the Cleveland *Daily Press*. It is an attempt of one of the "home rule" to defend the wets in the matter of efficiency.

"PROHIBITIONISTS ARE FOR EFFICIENCY."

If the laboring man drank no beer or liquor, even temperately, his efficiency would be greatly increased.

Somehow these prohibitionists are great for "efficiency." They want to make machines of men, to produce as much as possible in the shortest time

possible. *without joy*, without change, without recreation.

In the first place such a course never will increase wealth, and if it did, it would be at a tremendous cost to the living manhood of the state.

They next say that there would be no drunkards and that the sobering effect on the workman would save money now lost in drink; that the money spent in drink would be spent for groceries, etc.

Well, if every man who drinks a glass of beer were a drunkard, and had nothing left to buy groceries, there might be some point in the argument; that is, if he can use more groceries than he now eats. But the number of drunkards, unfortunate as they may be, when compared with the number of temperate drinkers, is so small that the argument falls of its own weight.

GRAHAM P. HUNT,
Counsel Ohio Home Rule Association.

In the above I have taken the liberty to put in some italics. It makes me think of the kind of joy these fellows *en*joyed when they got home singing "We won't go home till morning." And it reminds me too of the man who, under the influence of this kind of joy(?) murdered his *blind wife* as related in our back numbers, and the other one who slashed his helpless three-year-old boy seventy times—see page 735, Sept. 1. Do we want any more of such joy? And does not the above plea for moderate drinking or for the moderate use of liquor tend to help the dry side more than the wet?

THE RIGHT TO BE BORN SOUND, WITH A SOUND MIND IN A SOUND BODY.

The following is something I furnished one of our Medina papers. As it may be interesting also to the readers of GLEANINGS we give it a place here:

An Ohio man, Mr. John J. Lantz, in an address in behalf of good government, at Minneapolis on August 22, said something as follows: "We ought to concede to our babies the right to be born sober, with a sound mind in a sound body." They have the right to be born in an environment that will not deliver them to reform institutions in early manhood and womanhood, with a guarantee against cholera and smallpox. Isn't it more important to protect our babies against alcoholism? During the past 60 years that I have lived here in Medina, I have watched quite a few babies from the cradle to the grave. I have seen them while growing in their mothers' arms, and later I have watched their toddling feet. I have had a glimpse of them occasionally as they attended our Medina schools. I have seen the boys and girls grow from childhood to manhood and womanhood. One after another I would hear of their marriages. A little later the father and mother would show me their baby. Now, it would be a pleasant thing, a *glorious* thing, if all these little ones grew up and followed in the straight and narrow path. I remember a very pretty-faced, black-eyed German girl. She used to come to my store frequently, and I got well acquainted with her. One day she said to me confidentially, "Mr. Root, I am going to get married." A little later she introduced a young man, German like herself, and said, "Mr. Root, this is my husband." Time passed; and one day when I was tired of working at the bench she came in with a bundle in her arms and said smilingly, "Mr. Root, I got a baby." Of course, I talked to the baby, and saw him frequently until he could run about, and then I lost sight of my good friend Caroline. I have never seen her since. I will tell you what I did see, however. Years ago one of the boys came running to me out of breath and said, "Mr. Root, come quick. There is a young man out here declares he's going to lie across the track when the locomotive comes and it's already whistling." I found a young man I thought I had never seen. He was beastly drunk, and declared his purpose of lying across the track. He gave as a reason that he had promised his mother never to drink another drop, and that he had repeatedly broken his promise. "Now," said he, "I am going to make it sure. It's the only way."

My good friends, the above is a sample of a drunken man's logic. Finally, I asked his mother's name. How do you think I felt when I found the boy's mother was my bright friend Caroline, of former years? I tried to go with him to his home down north of Medina; but every time I left him, as soon as I was out of sight he would get back and lie across the track; and to save his life I was obliged to sit up almost until midnight, or until all the trains had passed, before I could go home.

The above is only just one little brief sample of the work of our saloons. Shall we not, for the sake of the babies, if for no other reason, put them out of existence when we come to vote November 2?

DAILY PAPERS THAT REFUSE LIQUOR ADVERTISING.

"Godliness is profitable."

It seems the W. C. T. U. has been making investigation in regard to the attitude of the daily papers of our nation toward drink. The following is a report clipped from the *Ohio Messenger:*

LIQUOR ADVERTISING.

The present attitude of the daily newspapers of the United States toward liquor advertising and prohibition is inspiring. The investigation reached every daily newspaper in the United States. Six hundred and seventy-nine replies were received to 2160 letters. Five hundred and twenty of the daily newspapers replying reported that they accept no liquor advertising. Three hundred and sixty of them announced that they advocate national prohibition in their editorial columns, while of the remainder only 200 are willing to say that they oppose. Three hundred and sixty-nine favor state prohibition, with only 193 opposing; 397 favor local prohibition, with only 176 in opposition.

Ten years ago no one could name half a dozen daily newspapers in the United States which favored national prohibition. Generally they treated it as a joke; and it was a common plaint of the temperance people, "If we had only one great newspaper!" Today, such great dailies as the *Republican*, of Springfield, Mass.; the *Tennessean* and *Banner*, of Nashville,; the *Times*, of Detroit; the *Times*, of Indianapolis; the *Journal*, of Lincoln; the *Gazette-Times* of Pittsburg; the *Intelligencer*, of Wheeling, and scores of other papers that are representative of power and influence absolutely decline liquor advertising on any terms.

When the Pittsburg *Gazette-Times* announced that it would accept no more liquor advertising one issue of the paper had two entire pages filled with fine-print paragraphic expressions of approval, and it announced that it was literally overwhelmed with its laudatory mail. The Chicago *Herald* added three thousand columns of advertising within a short time after taking its stand. The Coshocton (O.) *Tribune* gives a detailed report of wonderful prosperity under its dry policy, although they were "dead enough to drag out" when they were wet. A cheering fea-

ture of the correspondence elicited by this inquiry was the practically unanimous sentiment of the papers that prohibition is coming.

Only 46 of the papers replying were located south of Mason and Dixon's line. The rest were all Northern papers; and in view of the fact that a large majority of the Southern papers are known to be dry, the showing made is all the more imposing.

The American press is no longer a guardian angel, but is a specter to the liquor interests.

FLORENCE D. RICHARD.

I wish every daily in our land, more especially the great city dailies, would take notice of the paragraph above in regard to the Chicago *Herald;* and every one who has read it knows the *Herald* came out boldly and fearlessly in no doubtful terms—a "guardian angel" no longer, but a "specter" truly to the liquor trade.

On page 871 of our last issue something is said in regard to the matter of prohibition among college students, and we made a quotation in regard to Oberlin. It seems from the following, which we clip from the Cleveland *Plain Dealer,* that the colleges of the West are not going to be behind in the matter:

FRAT HOUSES GO DRY.

CHICAGO, Oct. 14.—Resolutions forbidding liquor in chapter houses of the Beta Phi fraternity were adopted at the convention of the order today. The resolution affects chapters at twelve colleges and universities in the middle West.

INTOXICANTS IN OUR COLLEGES.

We clip the following from the *Plain Dealer:*

BARS LIQUOR AT YALE; FACULTY SAYS FRATS AND CLUBS HEREAFTER MUST BE DRY.

NEW HAVEN, Ct., Oct. 22.—Notices have been sent out by the Yale faculty to all clubs, secret societies, and fraternal organizations to which Yale undergraduates belong, informing them that after Nov. 1 they will not be allowed to serve liquor in their club, society, or fraternity houses.

The faculty order is expected to end the social drinking of undergraduates which has been excessive at times.

Action is taken in connection with a new state law which provides all clubs or similar organizations which wish to serve liquor must obtain a special license. The Yale authorities do not desire undergraduate clubs to request licenses allowing liquor to be dispensed.

May the Lord be praised for the above. But does not this notice, given so publicly, show up a rather sad state of affairs in times past? If Yale makes such a confession, how about Harvard, Princeton, and others. See page 871, Oct. 15.

BOOZE CAUSES THE LOSS OF A STEAMSHIP.

Because her crew were intoxicated, a French steamship, loaded with ammunition, on her way to Nieuport, blundered into Ostend, and was sunk by the Germans.—*American Issue.*

REVENUE—IT SOMETIMES WORKS BOTH WAYS.

The cost of feeding the prisoners in the county jail during the two years while Lansing was dry was $5600, while during the two ensuing years of wetness the cost of feeding them (at the same rate per person) was $11,300. Quite a difference for a town of 40,000.—*American Issue.*

ANOTHER KNOCKOUT BLOW FOR CIGARETTES.

We quote the following from the Akron *Beacon:*

NORFOLK, VA., Oct. 1.—Captain Scales, commanding the naval training-station here, has issued an order banishing cigarets from the government reservation. He hopes by this means to make recruits strong and active.

Temperance Department continued on p. 19, advertising section.

POULTRY DEPARTMENT

THE PHILO SYSTEM UP TO THE PRESENT TIME.

Will you kindly publish what you know of the Philo system of keeping poultry? I should like to keep a few hives of bees and a few chickens, just to furnish eggs and honey for my own table.

I have a friend who keeps quite a good-sized flock on the above system, claiming that it is a paying proposition when one is cramped for room as I am.

New Britain, Ct., Sept. 26. X. Y. Z.

My good friend Philo has been demonstrating that chickens can be kept and a goodly amount of eggs secured when half a dozen or more are confined in closed pens 3 x 6. But the result very much depends on how much care is given them. They must have animal food in some shape as well as a variety of grains, and they must have, too, green food daily, or almost daily, or some substitute in the way of cooked or soaked alfalfa meal or red clover. Under some circumstances, with loving care, the amount of eggs secured may be almost as great as if the fowls had a run outdoors. But the expense of food will be very much more, and the expense in the way of *care,* etc., if one counts his time worth anything. Huber has had six hens all summer in one of the little Philo coops; and he says that, before they began to moult, he thinks they averaged pretty nearly three eggs a day. This we should call a 50 per cent yield—three eggs from six hens. Now, if you could have a yard also where they could dig and scratch, say only 3 x 6 feet, it would be very much better, because you could bury some oats in this little yard, and let them dig them out. Our Ohio experiment station has made a test of fowls confined, and fowls running at large. I have not the figures now before me; but if I recollect

right, the hens with a good large yard laid about a third more eggs than those shut up in a small house. If you had a yard large enough so they could get green food and insects more or less, the expense for the grain might be reduced a third or perhaps a half. In our Florida home 100 fowls, young and old, had a run of three acres; and they get all over it every day or two.

One objection that has been made to the Philo system is that it seems cruel to keep fowls shut up in this way, as it is so natural for them to range at large; and where they have been in the habit of running loose, it *does* seem to be a hardship. But chickens that have been shut up all their lives do not seem to mind it very much. While visiting Philo at his home in New York I said, "But wouldn't they *enjoy* it if they could once get out?"

By way of reply he opened one of the little coops, but none of the fowls ran out at all. Then he took two and tossed them out into the garden; but to my great surprise they ran right back into the coop. They did not feel at *home* outside. There is a difference in the breed, however. Some stand confinement very much better than others. Leghorns do not seem to be very well adapted to confinement.

HEALTH NOTES

And Jesus said unto them, This kind can come forth by nothing but by prayer and fasting.—MARK 9:29.

Dear Brother Root:—After reading your Health Notes, Oct. 1, I am prompted to ask you, as a follower of the Great Physician, why you never give the injunction that he gave his disciples in Mark 9:29 in curing difficult diseases. I have found fasting for a period of 36 to 40 hours, from all food, and even drink unless thirsty, when water is taken as often as desired, to be an unfailing specific for cough, colds, and the disposition to catch cold, catarrh, and ills of throat and nasal passages, and cure for deafness where the actual physical injury through inflammation has not been so great as to carry away some essential part of the "machinery," as you term it, of hearing.

In breaking your fast, eat as heartily as your appetite prompts of the easiest *uncooked* food to digest, which I have found to be a salad made of lettuce, celery, cucumber, cabbage, endive, or even turnips, any two of which, according to season, may be chopped up with raw apples or tomatoes, and dressed with a good salad oil and salt; and, if desired, a dash of lemon juice and honey.

For bread, chew slowly along with the salad some good hard biscuit, like hardtack, German pretzels, Swedish knackbrod, or water crackers. This is for your *breakfast*. Give the hearty meat dinner the usual treatment—abstain from "meats offered to the idol" of one's belly, from pork, and from eggs. It has been said that no orthodox Jew who abstains from pork ever dies of cancer.

Your directions as to a daily washing of the whole body are good with one exception—that of the toothbrush. Your teeth and mouth will become *absolutely clean*, as soon as the alimentary canal has through systematic fasting, becomes clean. This cleanliness is indicated by the fact that the excreta becomes inoffensive in odor, and of a healthy yellow color.

If the teeth are unclean, with a bad taste in the mouth, it is a sure indication that the forty-hour fast should be resorted to at once and persisted in from time to time until this ideal condition of a clean mouth and alimentary canal becomes a settled condition, when the buzzing sounds in one's ears, with sore eyes, running noses, cough, colds, eczema, and so on, will "lift up their tents, like the Arabs, and silently steal away" without recourse to pills, gargles, washes, etc.

However, I have found it impossible to attain this ideal while keeping to three meals a day of cooked food. One meal is better by far than three; and your idea of the apple supper is excellent. I find a vegetable diet, composed of half alkaline vegetables and half acid fruit the ideal thing, though I vary it with small quantities of the dairy products, good butter and cheese; but milk, almost never. Honey in the comb is enjoyed by me as a nectar from God.

The further along I go on the road to Wellville the further behind I leave meat and eggs, which I have identified as "meats offered unto idols."

JOHN A. WINTERBURN.

West Morris, Ct., Oct. 8.

My good brother, I agree with you in regard to the matter of prayer and fasting. Faith healing has had at different times many followers, and has, even at the present time; but I shall have to confess that I never noticed, until you called my attention to it, that the Savior recommended in a single sentence *fasting* as well as prayer; and I am sure my health has been very much benefited since I have used no *cooked* food, after noon time. Apples are certainly uncooked food, and the little cheese I use with them is uncooked in the sense that no cooking or heat is necessary for the last meal of the day. Mrs. Root often declares it is quite a saving of housework to be relieved entirely of the task of "getting supper." I personally, however, could not quite agree in regard to the vegetarian diet. Please remember I was for four years myself a vegetarian; and later on I was for *eighteen weeks* without any vegetable food whatever—lean meat and nothing else—not even an apple. I now use a little meat, but get along very well most of the time, even for several days, without any meat at all; and I think very likely I could adopt a vegetable diet exclusively, providing I could have plenty of milk and eggs. If I understand you correctly, you object to milk. I use milk both at breakfast and dinner, but only about half a cupful. If I take more I

sometimes find it necessary to stop the use of milk for several days. Your statement that no toothbrush would be needed if we fast often enough, etc., may be true. Of this I feel sure, that the mouth tastes bad, and the teeth become coated, much oftener when there is a disturbance in the digestive machinery.

HIGH COST OF LIVING; $27 A BUSHEL FOR WHEAT, ETC.

I have said so much about making your own breakfast foods with a little hand mill, or boiling your wheat and other grains whole, that it may be a little wearisome. Here is something, however, from *Farming Business* that may wake some of us up in regard to the one chief cause of the high cost of living.

ONE CHIEF CAUSE.

Pampered palates form one of the chief causes of the high cost of living which has been causing so much worry to millions of people in this country alone. When wheat went to a dollar a bushel and beyond, professional paragraphers began to use up much good ink in claiming that the farmers, and the price they were getting for their wheat, were the chief cause for the high cost of living. Had they looked into the tin cans and paper sacks which contained a goodly portion of the food which they ate they would have seen a much greater factor than the price which the producer gets, and that is the price which the middleman and the handler get.

Simply for the sake of making the argument as simple as possible, let us take one thing for example, a thing which is found on the breakfast tables of so many people in this country—prepared breakfast foods. Professor E. F. Ladd, of the North Dakota Experiment Station, throws a revealing light on this subject of the cost of prepared cereals. When he bought a package of a widely used prepared wheat food the dealer informed him that the price had been advanced from 10 to 15 cents on account of the war. By making a simple calculation he found that when he ate it he was eating wheat at 45 cents a pound, or $27 a bushel.

Many of our pioneer ancestors ate simply boiled wheat as a cereal food. It was very palatable and nutritious—even more so than most of the fancy cereal foods we get in waxed bags inside pasteboard cartons at a price of $27 a bushel for the wheat from which they are made. Moreover, they had to work their teeth and their digestive apparatus more to handle the boiled wheat than we have to work ours to eat and digest these patent predigested foods of our day, and for that reason they were healthier than we are.

FRAUDULENT PATENT MEDICINES.

May the Lord be praised that our Department of Agriculture has seen fit to take hold of the medicine business and destroy their senseless drugs and punish the offenders. We clip from quite a lengthy article in the *Weekly News Letter*, Washington, D. C., the following:

It is pointed out that traffic in medicines for which false and fraudulent claims are made is not only an economic fraud of the worst kind in that *a worthless preparation that costs but a few cents is frequently sold for a dollar or more a bottle,* but that health and even life are endangered by failure to secure the service of a physician in such serious diseases as tuberculosis, diphtheria, pneumonia, and scarlet fever until too late, because reliance may have been placed in the curative powers of some worthless preparation which is claimed to be a never-failing remedy. The deluded victim may not realize his danger until the disease has reached a stage too far advanced for even the ablest physician to cope with it. Effective treatment depends in most cases on applying it during the early stages of the disease.

After the above quotation a list of about sixty different medicines, some of them having quite a large sale, are mentioned as being suppressed. One great harm that these medicines do, as suggested, is that, even if the medicines are harmless, they induce people to defer consulting the family doctor until it is, perhaps, too late.

This *Weekly News Letter* from the Department of Agriculture is sent to periodicals, colleges, etc., with the understanding that our different agricultural papers shall send out warnings, making clippings, etc.

OXYDONOR AND ELECTROPOISE

One of our friends sends us the following which he clips from the *New York American:*

FRAUD ORDER AGAINST NEW YORK DOCTOR.

WASHINGTON, Oct. 16.—The Postoffice Department today issued a fraud order against Dr. Herschel Sanche, of New York, and the Oxydonor Sales Company, of Rochester, N. Y., Cleveland, Detroit, and Chicago. The order alleges that Dr. Sanche controls the company, which sells a pump guaranteed to transmit hydrogen into the human system with great curative powers. Postoffice Department officials charge that the scheme is a fraud. Dr. Sanche is alleged to have made $1,000,000 from the sale of the pumps.

Did you ever? The reporter calls the humbug toy a *pump;* and then he says it is guaranteed to generate *hydrogen.* Well, it is probably just as well that way, and just as true. The world can rejoice that Dr. Sanche has come to a stopping-place. Years ago, when the venders of electropoise got to raking in the money, Sanche and some others as covetous got up a thing and called it oxydonor; then various other parties went into it also, all claiming they could "pump" oxygen through a wire, and that is why "oxy" is put before all their make-believe traps. The writer who sends us the clipping says his wife had an aunt who was persuaded to buy an oxydonor to cure *cancer.* She of course died *in spite* of the "treatment." If it is true that Dr. Sanche has "robbed sick people" to the extent of a *million dollars,* he can well afford to "let up" a while.

HIGH-PRESSURE GARDENING

SWEET CLOVER—SOWING IT IN ROWS, AND CULTIVATING IT LIKE CORN.

We are today, Oct. 4, cutting our corn; and the sweet clover seeded between the rows of corn that I have several times mentioned is now a thing of beauty. There is not a bare spot in the field, and the clover is almost knee-high. There is one objection to this method; and that is, the corn, as fast as it is cut, must be carried off out of the field or a great lot of the clover will be injured or destroyed where the corn was cut and shocked. As our field is rather long and narrow, the cutters, as they cut the corn, carry it out at the sides and ends. It is somewhat expensive; but I am so anxious to see this field of clover do its best that we are risking the extra expense. Now, here is something queer from *Field Sense*, published by the Field Seed Co., of Shenandoah, Iowa:

SWEET CLOVER IN MONTANA.

You remember last spring I told you about a man up in Montana, right next to the Canada line, who was growing alfalfa in rows and using 5 ounces of seed to the acre. This is the same man, but this isn't alfalfa. This is sweet clover. He grows it in rows the same way, using less than 1 lb. of seed per acre, and cultivating it like corn. He grows the alfalfa the same way, but in the pictures he sent me it had fallen down across the rows till you could not tell where the rows were, and it looked like an ordinary flat field of alfalfa. He grows Grimm exclusively, and expects to cut his whole 130 acres for seed.

You will notice from the above that it is a tremendous saving of seed. In our cornfield we used toward 15 lbs. of hulled seed to the acre. I now feel sure that half as much or even less would have done just as well, especially with the new scarified seed, and, in fact, *every* seed seems to have come up within three or four days. Perhaps if the clover is grown for feed there is an advantage in thick seeding. My impression is, we get almost as much seed from the sweet-clover plant where put in only as thick as hills of corn. When it comes to cutting it for hay, no doubt the thick seeding would be better. Who can tell us about this? As the hulled seed is worth now from 20 to 25 cts. per lb., taking only one pound in place of 15 would go pretty well toward covering the cost of running the cultivator between the rows.

SWEET CLOVER FOR BRINGING UP THE CONDITION OF THE SOIL, ETC.

I clip the following from the *Alfalfa Journal:*

On a recent automobile trip the farmers near Bloomington, Ill., visited the large sweet-clover field on the Homer Hull farm. Fourteen acres of sweet clover were seeded with oats last year. This was not standing over a foot high. Mr. Hull seeded forty acres of red clover in the oats last year, and failed to get a stand. This seems to be a common result in this vicinity during the past few years, and that is why so much sweet clover has been planted. Sweet clover is being used in the rotation. The first crop is cut and allowed to lie on the ground for fertilizer. The second crop is used for seed production. The straw will be hauled back on the land. It is estimated that the first cutting and the straw will amount to eight tons of manure to the acre, besides the good condition in which the soil is put by the use of this method. Sweet clover seems to make a better top and root growth than red clover, and the farmers in this vicinity are beginning to think that they can depend on the sweet clover more than the old-fashioned kind.

Just think of it, friends! equal to eight tons of manure to the acre to benefit the land while you get a crop of seed besides. Our own experiments would indicate the above as being not far from right.

THE DASHEEN BUSINESS IN FLORIDA AT THE PRESENT TIME.

The following was sent us without any indication as to what paper it was taken from:

FLOUR FROM DASHEENS; FLORIDA FINDS A NEW BREAKFAST FOOD.

CRYSTAL SPRINGS, FLA., Sept. 17.—A manufactured products of dasheens is being used here, and perhaps elsewhere, as a breakfast food, and people who have tried it with the usual breakfast-food trimmings say that it is about the smoothest article in that line imaginable. Dasheens have a flavor suggesting chestnuts, and the breakfast food manufactured from dasheens is said to have a delightful nutty flavor that makes friends of the eater right away.

This information was brought out at a meeting of dasheen-growers for the purpose of considering the advisability of installing a small flour-mill for the manufacture of dasheen flour and other products.

At the meeting a letter was read from Prof. R. A. Young, of the Bureau of Plant Industry, United States Department of Agriculture. Mr. Young was in charge of the dasheen-growing experiments for the agricultural department at Brooksville a few years ago, and has visited Crystal Springs twice in the interests of that industry.

THE STRIPED SQUASH-BUG; HOW THEY MANAGE WHERE THEY GROW CUCUMBERS FOR THE GREAT PICKLE-FACTORIES.

If Mr. Root will dust his squash and pickle plants after every rain with tobacco dust and lime, half and half, he will find it a sure remedy for the striped bugs. We grow cucumbers for the Hinze pickle-factory, and we all use the remedy here.

Bowling Green, O., Aug. 23. U. E. LOY.

Very likely the above will answer, or at least help; but when it rains every day, or even every other day, it will not only take quite a little "dust," but keep one busy.

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Gleanings in Bee Culture



Vol. XLIII NOVEMBER 15 1915 No. 22

BEEKEEPING

By Dr. E. F. PHILLIPS

One of the best bee-books that has been written in this decade.

See the editorial review on page 834, October 15.

Regular price $2.00; or clubbed with "Gleanings in Bee Culture," one year, for $2.50; or with our "A B C and X Y Z of Bee Culture," $3.50.

Canadian Postage, 30c extra; Foreign Postage, 60c extra

One would naturally suppose that its author, a scientific man—a trained entomologist, and one who is constantly associated with some of the best scientists of the Government—would turn out a book that would be so technically scientific that it would be beyond the reach of the average beekeeper. This is not the case. While it is scientific, it is couched in such language and style that the average reader can easily understand it. But when we say it is scientific, we might, without further qualification, convey the impression that it is not also practical. As a matter of fact, the book is intensely so, because Dr. Phillips has traveled all over the United States, mingling with the best beemen in the country, and he has had, during several years back, one of the best beekeepers in the country, Mr. George F. Demuth, as his first assistant.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

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EDITORIALS

The Ohio State Convention at Akron, Nov. 26, 27

A splendid program is in preparation, and a number of speakers from various parts of the state, including Dr. E. F. Phillips, of Washington, D. C., will be present. Indications go to show that this will probably be the best convention we have ever held.

Mr. A. J. Halter, of Akron, writes: "I have made arrangements at Garfield Hotel for visitors for convention, Nov. 26 and 27. Rates $1.00 per day for single rooms, $1.50 with bath, or $1.50 per double room."

Of course the Root forces will be present, and some have expressed a desire to go, after the convention, from Akron to Medina in automobiles to visit the Root plant. If the roads are good the trip can be very easily made, as Medina is only 20 miles west of Akron. Visitors are always welcome at Medina.

Akron is the rubber city of the world. It makes more automobile tires and rubber specialties than all the rest of the United States put together, and it possibly equals the output of all the rest of the world. We understand an opportunity will be given to the Ohio beekeepers to go through one of the biggest plants at the close of one of the sessions.

Motor-cycle Accident to one of the Men Formerly Connected with The A. I. Root Company's Apiaries

Rev. Geo. W. Phillips, formerly of Jamaica, B. W. I., and later foreman of the apiaries of the A. I. Root Company, author of "Modern Queen-rearing," and the A. I. Root Company's Correspondence Course in Beekeeping, met with a severe motor-cycle accident from which he nearly lost his life. He suffered a fractured skull, a broken arm, and a shattered kneecap. However, he is now on the rapid road to recovery, and perhaps the only permanent injury will be a stiff knee.

Mr. Phillips, after he left Medina, took a college course, and later a seminary course, graduating with high honors. He has been connected with various large churches, and is now pastor of the First Baptist Church, Hamilton, Ohio. He not only can preach Christ, but he can talk bees. Besides his long experience in managing our series of yards and raising queens in small baby nuclei at Medina, he owned and operated several large apiaries in Jamaica before he came to this country.

Right Church, but Wrong Pew

Two recipes, pages 812 and 813, Oct. 1, got separated. Some one may be following a recipe for pudding sauce and expecting it to turn out fruit cookies.

The last recipe in the first column, page 812, entitled "Cookies," should be followed by the third recipe in the first column, page 813, which has no title, but reads as follows: "Fruit cookies are made in the same way," etc.

The completed recipe should read as follows:

COOKIES.

One cup extracted honey; one cup light-brown sugar; 2 eggs well beaten; a level tablespoonful of soda dissolved in 3 tablespoonfuls of vinegar; pinch of salt; flour to stiffen (about 3 cupfuls in this altitude). Mix at night, and bake in the morning.

Fruit cookies are made the same as the above by adding one cup of shortening, one cup of chopped raisins; ¼ teaspoonful of cinnamon and allspice; ⅛ teaspoonful cloves and nutmeg; cream sugar and shortening, and proceed as above.

Colo, Iowa. Mrs. Oscar Tripp.

The Insects' Homer

At Avignon, in southern France, Henri Fabre recently died at the age of ninety-two. Probably not one beekeeper in ten ever studied Henri Fabre, yet he was one of the very few most learned entomologists in the world, a member of the small and obscure group of men who have given their lives to the study of insects, and to the study of the honeybee among the rest.

He pursued his investigations under great

difficulties. With the responsibilities of a large family to meet he was forced to give almost his whole time to teaching mathematics, reserving only odd moments for entomology. Notwithstanding his hardships, he early became an authority in his chosen work, and formed friendships with such men as Charles Darwin and Victor Hugo. It was Hugo who called him "the insects' Homer" on account of his literary ability.

His greatest work, "Souvenirs Entomologiques," contains many valuable observations on the ways of honeybees, and has placed him among the authorities in apiculture. In an editorial on Henri Fabre, *The Outlook* says that it was through conversation with him that Maurice Maeterlinck was inspired to write "The Life of the Bee." Of him Maeterlinck himself wrote, "He is one of the most profound scholars, purest writers, and finest poets of the century just passed."

Bees Blamed Again for the Work of the Birds

A WOMAN living near one of our outapiaries telephoned to us about the middle of October, inquiring if there was any way that she could keep the bees away from her grapes. She said that they were simply spoiling the crop. We asked if she hadn't seen birds around the grapes, and she said that she had, but didn't think that they were eating the grapes. We asked her to tell what kinds of birds she had seen, and she said they looked like small sparrows. There are a number of birds that eat grapes, and we believe sparrows have been caught in the act.

It so happened, however, that, just before this woman telephoned to us, a farmer living near Medina sent in two birds that he shot while in the very act of puncturing his grapes. He did not know what kind of birds they were, and was anxious to have them identified. A local ornithologist examined them, and showed us that they were Cape May warblers. We, therefore, explained to the woman mentioned above that in all probability the birds were Cape May warblers—that they merely punctured the grapes and the bees afterward sucked the skins dry. We told her that bees could not puncture sound fruit, and explained why they could not. She then said she had wondered why the bees paid no attention to the grapes under the roof of their porch where the birds did not come, but worked only on those outside the roof where she had seen the birds frequently.

The Cape May warblers are notorious grape-eaters. Unless they are watched closely, however, they cannot be caught in the act, for they merely pierce the skin, making a very slight puncture, and then go to another grape. The bees, meanwhile, sucking the juices out of the fruit already spoiled, nearly always get the blame. As has been proven many times, bees will pay no attention to sound fruit. If the skin is pierced by even a fine needle, however, the bees will "get busy."

The warblers, contrary to what might be expected from their name, do not sing much. They have merely a sort of short chirrup.

The birds at this time of the year were on their way south. They winter even as far south as Central America, and in the spring migrate as far north as Canada. They remain in the north-central states a week or more in the spring on their way north, and perhaps the same length of time in the fall on their way south. It is on their southern trip that they do the most damage to the grapes, for a whole flock of them sometimes almost takes possession of a vineyard. The only remedy is to use the shotgun and thus kill and frighten them away.

The following very complete description is from "Birds of Eastern North America," by Frank M. Chapman:

Dendroica tigrina, Cape May warbler. Adult male, crown black, slightly tipped with greenish; *ear-coverts rufous*, bounded behind by a large yellow patch on the side of the neck; back olive-green, broadly streaked with black; rump yellow or greenish yellow; *a large white patch on the wing-coverts*; outer tail feathers with a large white patch on their inner webs, near the tip; under parts yellow, heavily streaked with black; lower belly and under tail-covers whitish. Adult female, upper parts grayish olive-green; rump yellowish; a yellow line over the eye; middle wing-covers with narrow white tips; outer tail-feathers with a white patch on their inner webs near the tip; under parts yellow, streaked with black; belly and under tail-covers whiter. Immature male resembles the female, but the wing-covers have more white. Immature female is similar to adult female, but with little or no yellow on the under parts. L., 5.00; W., 2.61; T., 1.88; B. from N., 30.

Range.—Eastern North America; breeds from Northern New England north to Hudson Bay; winters in the tropics.

Washington, sometimes very common, usually uncommon T. V.,* May 5 to 20; Aug. 25 to Oct. 7. Sing Sing, tolerably common T. V., Aug. 20 to Oct. 1. Cambridge, rare T. V., May 15 to 25; Aug. 25 to Sept. 15.

Nest, partially pensile, of twigs and grass fastened with spiders' webbing, lined with horsehair on a low branch of a small tree in pasture or open woodland. *Eggs*, three to four, dull white or buffy, slightly specked, and wreathed around the larger end with spots of brown and lilac, .70 by .50 (Chamberlain).

* Transient visitant. These warblers are very useful visitors in orchards. A flock of warblers is said to be worth several barrels of spraying emulsion in getting rid of grubs and insects.—ED.

Our Cover Picture

Our cover page this issue is from far-off Australia. In that country they have recently begun to realize the immense value of water for irrigation purposes. Back a few hundred miles from the coast of New South Wales there are millions of acres of intensely fertile land which, under normal conditions of from five to eight inches rainfall per annum produce only a few blades of not too succulent grass, sufficient, perhaps, for keeping a sheep alive on each five acres of land.

The illustration shows an immense reservoir that has been made away up in the hills, impounding quite a small lake, and this water has been led out on to the plains, a distance of 430 miles away.

The land watered has been re-purchased by the government, and is let out to settlers at a comparatively low rental. Although only three years since the water has been applied quite a change has come over the country. Alfalfa hay yields seven cuttings per annum, and with that sheep and cattle are fed and fattened in considerable number per acre. Fruit trees show marvelous growth, and to help dispose of the crops large canning and drying works and a very fine butter-factory have been established.

Quite a large village or shopping center is forming. Several churches have been built, and public schools established.

Several beekeepers have located on the Murrumbidgee Irrigation Area, as it is called, and no doubt they will get good results before long. The picture has been supplied to us by Mr. Herbert J. Rumsey, of Dundas, N. S. W., who has recently paid us a visit at Medina.

Insure your Product's Reputation

The extent to which the courts go in protecting one's rights to the use of his own name as a business asset is shown in several recent trade-mark suits. "But are we interested in trade-marks?" inquires a beekeeper. You are. No large business in honey or in any other product can be built up without some distinguishing name of the product, and once a profitable business is established unfair competition may arise, involving trade-mark difficulties.

One can protect his name pretty fully, even though some one else of the same name is engaged in the same business, writes Mr. C. J. Williamson, the well-known patent attorney of Washington, D. C. A producer can defend it to the extent of requiring a competitor to use initials or full name to distinguish the competitor's product from his own, and can sometimes even force his competitor to use some sentence pointing out the distinction.

The immense amount of litigation over trade-marks simply shows how great is their value to the producer. Among the business principles familiar to large producers of other foods and of value to honey producers as well, not the least of these is the subject of trade-marks.

Winter Packing in Rows vs. Packing in Quadruple Winter Cases

The method of packing as illustrated and described by R. C. Gifford in this issue, page 929, has been used to a considerable extent. It is so old that probably no one can claim priority in its use. But even if it is old, it has some good features. It has the advantage over the four-in-a-case scheme (1) in that it is much more economical; (2) that the entrances of the hives can face the direction where there is the least wind exposure. This last feature is a very important one. Where the hives are packed four in a case, back to back and side to side, it naturally follows that one pair of hives must have entrances directly opposite the entrances of the other pair. If one pair faces south, the other pair faces north, and that is very bad; so it is usually recommended to place the entrances facing east and west. In most localities strong heavy winds come from the west, and fitful storms from the east. Taking everything into consideration, a southern exposure is the most favorable, and this can be permitted only when the hives are packed as described by our correspondent on page 929. But the arrangement has the slight disadvantage that the back ends of the hives are not protected like the back ends of hives in a quadruple case. In the last named there is only one side and one front next to the packing; and the packing is next to the weather, and, what is of considerable importance, the grouping of the four hives together concentrates and conserves the heat. In the plan spoken of by R. C. Gifford there are two ends that are exposed to the weather. In the case of the inner hives in the row the advantage would be slightly in favor of the long-row packing except for the conservation of heat in the four. Another disadvantage of the long case is that the bees must be unpacked earlier than in the quadruple case.

But the most serious disadvantage, according to a number of reports, is the drifting of the bees from one entrance to

another on good fly days. The stronger colonies in the row will draw from the weaker. When the weather is favorable, the flying bees in the air are inclined to join the procession where there are the most bees flying, and they will be in front of the strongest colonies, of course. The result is, the stronger grow stronger at the expense of the weaker.

The same thing can occur where the hives are packed in groups of four; but to a very much less extent because there are only two colonies on one side and the bees of either are not as likely to get confused as they are when there are a dozen entrances side by side. Dr. C. C. Miller says when colonies are put in pairs bees don't drift much. If this is true, the quadruple scheme is much superior.

This is a fruitful theme for discussion, and we should like to have those of our subscribers who have tried the two methods tell us about them; or if you have tried only the long-row scheme of packing, tell us of the objections, if any, that exist against the plan.

That New or Old Bee Disease; More Data Needed

On page 784, Oct. 1, we said something about the new disease or malady that has been so destructive to colonies in the West and extreme Northwest. We learned of its active operations in and about Portland, Oregon. We have had considerable correspondence with Mr. E. G. Ladd, of the Portland Seed Co., who observes, among other things, that weather conditions are an important factor, and that some colonies are more immune than others to the ravages of the disease. In answer to a recent letter in reply to one from us Mr. Ladd makes some observations concerning *Nosema apis,* or bee paralysis, or both, that are worth placing before the public. He writes:

Mr. Root:—Your conclusion that the bees in some colonies were affected more than the bees in others admits of no argument; neither does the question of weather conditions being responsible for it, as undoubtedly the trouble disappears when good weather conditions prevail. Whether the sick bees recover, we are not prepared to say, but believe not. I am inclined to think affected bees disappear and die.

Sulphur is one of the best known fungicides, and colonies treated with sulphur were cured or the trouble was checked; but in no instance was a colony saved that was treated with sulphur. Although apparently cured, they dwindled away. The application of sulphur killed the brood, and the bees were a sickly lot, and supposedly became discouraged and quit trying.

My garden record this summer shows potatoes and tomatoes blighting badly. They were sprayed with Bordeaux, but there was not sufficient to go around, and part of them were not sprayed. Weather conditions turned warm and bright, and immediately the blight was checked, and the unsprayed lot gave as fine a crop as ever grew, and no difference was discernible between the sprayed and the unsprayed.

I find by the bee record that the date of improvement in garden corresponded with date of improvement in bees; but no bee was ever, as far as I know, seen on a potato or tomato, and I do not know if they visit the blossoms or not. The remarkable feature of the whole business is that locality apparently had nothing to do with it. Bees in the mountains, in high altitudes, were stricken, as were those in the valley. Bees protected from the weather were no more free than those exposed; but, as one good old lady remarked, "It just beats all how them bees do die."

Let us hope that there will be no recurrence, and that it will not be necessary for Dr. Phillips to visit any section looking for a cause of this affliction, and sincerely hope no more such reports will be offered by yours. Portland Seed Co.,
per Ladd.

Portland, Ore., Nov. 3.

We should like to get a list of symptoms from other parties who have suffered from this disease, for the purpose of comparison. One thing we wish to determine is whether it is the old bee paralysis, or nameless bee disease, of former days, or *Nosema Apis* of these latter days. If it is not paralysis, in what respect does it differ from it, and in what other respects is it similar? The more data we can get together just after an epidemic of this disease in this country, the better able we shall be to learn what it is.

In this connection we may add that some colonies or some strains, rather, are more immune to bee paralysis than others. This fact has been proved beyond question in Australia, where bee paralysis was so epidemic and destructive that the beekeepers there, as a last resort, selected colonies that were more immune than others. By a continual selection they finally secured strains that were entirely immune. Later on, Mr. R. E. Beuhne, of Tooberac, Australia, introduced some other strains of Italians from Europe and America. These immediately fell victims to bee paralysis. It was only after he had weeded out all traces of introduced strains that he was able to bring the disease under control. Mr. Beuhne is one of the most careful observers of bee life in the world.

Now, then, what we should like to determine is whether the bee paralysis of Australia and of the southern United States is the same as the *Nosema apis* of Great Britain. Is it the same as that disease or malady, whatever it is, that has been working such havoc in some western apiaries in the northwest part of the country, in and about Portland, Oregon? What relation has humidity or much rainfall to the recurrence and virulence of the disease?

Dr. C. C. Miller STRAY STRAWS Marengo, Ill.



"LIGHT honey does not impart any appreciable flavor," p. 799. Generally that's true—not always. I've had light honey (alfalfa) with so strong a flavor that I couldn't use it in my drink. [It would be more correct to say that light honey does not impart any strong flavor as a rule. All light honeys, with perhaps one or two exceptions, have a very delightful flavor. Generally speaking, mildness or strength of the flavor varies according to lightness or darkness of the honey.—ED.]

"THE great trouble with the 'baits' is that they granulate almost immediately after they leave the producer's hands," p. 831. Why? Because of granules in the cells from the honey previously contained. If the baits are cleaned out in the fall *by the bees*, honey should not granulate in them more quickly than in other sections. [You are doubtless correct; but a great majority of those who use baits leave the honey in. Old honey will granulate more readily than new, and when the new honey is piled on the old it all granulates.—ED.]

REPLYING to P. C. Chadwick, p. 837, I saw once, and only once, a laying worker in the act of flying. She was in a worker-cell, and her wings were pushed up about her neck in an uncomfortable way. I think that accounts for the fact that laying workers prefer queen-cells and drone-cells. As to whether only one laying worker or many, some years ago a German investigator dissected a number of workers in a laying-worker colony, and found eggs in a large proportion. [The obstruction of the wings also explains why very often laying-worker eggs are partly up from the bottom and on the sides of the cells.—ED.]

ALUMINUM is recommended for hive-covers, p. 818. Wonder how it compares with zinc. After years of use my zinc covers seem as good as new—no paint, no rust. [The objection to aluminum would be the expense; but, say, do you know that both aluminum and zinc have more than doubled since the war began? When the new bee-supply catalog comes out an extra charge will have to be made for zinc covers as well as for any metal cover. Why not use paper? A good quality of roofing-paper, well painted, if carefully handled, will last nearly as long as zinc; but it will never do to pile hive-supers on paper covers.

G. M. DOOLITTLE says, p. 839, "from years of experimenting along that line I cannot help thinking that much honey is lost in the attempt to stop prime swarming by destroying queen-cells." I have not merely experimented but practiced it to the fullest extent for very many years, friend Doolittle, so that my experience is probably much larger than yours, and I am confident that I have gained honey by it in some cases, and I doubt if I ever lost by it. My best yields are generally from those colonies that never start a queen-cell, and the next best from those that were prevented from swarming by having their cells killed. But the beginner who thinks he can prevent all swarming by killing cells is fooled. [This is an interesting piece of testimony. We desire to inquire whether others have had a similar experience. We should naturally incline toward the opinion of Dr. Miller, for the simple reason that some of the best comb-honey producers in the world practice cell-killing.—ED.]

MR. EDITOR, you say, p. 835, "We fail to see yet why piping and quahking cannot be made by the same organs and in the same way." I never hinted that they couldn't. But that doesn't make them alike. When I say, "Tom shot John," I use the same organs and in the same way as when I say, "John shot Tom," but the two things are not the same. Compare these two lines:

- - - -

J. E. Crane

SIFTINGS

Middlebury, Vt.



G. M. Doolittle tells us, page 796, Oct. 1, that after much experimenting he prefers to space frames 1½ inches from center to center. The same here, and we have used them so for the last thirty or forty years.

* * *

There are some unpleasant things about inspection work; but it is by no means *all* unpleasant. There are some very pleasant things, and the making of some charming acquaintances and forming some lifelong friendships are not the least of them.

* * *

Mr. Chadwick calls attention on page 703, Sept. 1, to the wide difference in the price a certain consumer paid for peaches and what the producer received. There is evidently something wrong in our methods of the distribution of farm produce.

* * *

I began to wonder, as I looked over GLEANINGS for Oct. 1, whether there would be any extra copies to be had, and felt quite relieved when I found that several thousand extra had been printed. They will doubtless all be wanted, as well as a good deal of extra honey to go with them.

* * *

On pages 663 and 664, Aug. 15, Mr. Pouder gives some good advice about selling honey. Advertising in newspapers, he tells us, has always been a failure with him. Getting bottled goods into wholesale houses has been his best method for this class of goods. Same here.

* * *

The statement of Mr. T. Rayment, page 711, Sept. 1, in regard to the loss of pollen while working a certain variety of eucalyptus, reducing a strong colony to a mere nucleus, is of great value. The substitute of the white of an egg stirred into pulverized sugar, he tells us further, is the best substitute for natural pollen—a fact many of us are interested in knowing.

* * *

Nearly 175 recipes for the use of honey in the Oct. 1st issue, but one good one was left out, and I will give it now.

Ambrosia.—Take equal weights of choice butter and well-ripened, fine-grained, granulated alfalfa or clover honey (other honey of good quality will answer); place in a warm room to soften, then work them together until of even color. Mold to suit. This makes one of the most delicious spreads that I know of for bread, warm biscuit, or griddle cakes.

* * *

The editor, page 697, Sept. 1, inquires whether "those large quadruple winter cases or tenement hives" have made good. I made a large winter case for twelve hives a few years ago, with heavy packing, but do not find any appreciable difference in wintering over those wintered in single double-walled and packed hives except that it makes more work.

* * *

Reference is made, page 741, Sept. 15, to the introduction of virgin queens. For many years we have practiced introducing nearly all our queens as virgins into full colonies. We have noticed a great difference in different seasons. Some years, not more than five or eight per cent, while in other years from ten to fifteen per cent fail to give an account of themselves.

* * *

Page 730, Sept. 1, T. J. Frost describes his hivestand, which is called "a new hivestand." It is a very good stand, but is not new, as I have had such a stand in use for more than forty years—yes, many of them; but after many years' experience I prefer a front entrance on the bottom-board where one may see at a glance what is going on or what is going in and out of the hive.

* * *

Louis Scholl tells us, page 659, that "Bulk comb honey and chunk honey are two different things." Please tell us once more just the difference and we will sit up and take notice. We made a lot of supers last winter to be filled by the bees so we could cut it out and sell in pails; but many of the combs are so filled with bee-bread, or have been occupied with brood, that we are extracting them.

* * *

A few weeks ago I was asked to visit a yard of bees some miles away. The proprietor feared he had foul brood. He said he had fifty colonies in the spring in very good condition, but they began to die in May, and he had only twenty left and had failed to secure more than a few cases of surplus honey, although the season had been very favorable. I found no foul brood, but learned that a good deal of spraying had been done in his immediate vicinity.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



On page 844, Oct. 15, is an article and illustration of my two friends, the bee and the spider. The spider was my friend before I knew the bee. At about the age of seven my father lived on the prairie in Douglas Co., Kansas, where the life of a small boy was made up principally of the things he found to interest him and fill out his time and employ his energy. I took up the study of the wasp, or, as we called them in those days, "mud-daubers." I did not know I was studying—I simply thought I was playing to fill in the time. But I followed the mud-daubers to the mud by the horse-trough and back to the barn to see where and how they used the mud. I became expert in following them, and solved the mystery of the feeding of the young larvæ.

After the long cells of mud were moulded and sufficiently dried, the wasp began the search for spiders with which to fill the cells, and, strange as it may seem, the spiders pictured on page 844 were the principal kind used by the wasp. Never a very large one nor a very small one, but only those of uniform size, were placed in the cell. When the cell was about half filled, the egg for the future wasp was laid on the body of one of the spiders. The cell is then filled with spiders, and the sealing is done. I formed a boyhood love for the spider, for he made food for my friend the wasp. So while the spider is getting a few of my friends, the bees, they are preyed upon by the wasp, and each in turn helps to work out the plans of a God-given nature, a part of the great plan of the life to fill the world with beauties, wonders, and interest to the fullest extent.

* * *

In the *Country Gentleman* of Sept. 18 I find an editorial headed thus: "A Disease to Beware of." It is so good and so full of simple truths that I give an outline of its contents, *substituting honey for words used therein.* It is a disease that attacks the grower and not the crop. It is spread through a germ, *Sellius itchii.* Now, in plain terms those two words mean itching to sell. The germ is not visible, even under the microscope, but is communicated from person to person in a prosperous farming neighborhood, or caught while talking to honey-buyers or reading the bee-papers. Shortly after the infection the patient begins to show definite symptoms. First he has a general uneasiness about the size of the crop being harvested in his neighborhood, accompanied by a feeling that crops all over the country are too big. Then follows a depression, with a deep fear that even one hundred million people cannot eat, in the next eight or ten months, all the honey that is being harvested. About the third day after coming down, the patient developes a blind monomania. He is obsessed by the idea that he must sell his crop; must get ahead of his neighbors before they sell and leave him without a market; must get his honey off his hands somehow quickly; must sell! sell! sell! There is never going to be any tomorrow, so far as he can see, nor any next winter, nor any spring. He sees wagonloads, carloads, and trainloads of honey everywhere, and is persuaded that prices are permanently shattered. I will quote the remainder of the article verbatim.

"In this condition he has a pitiable weakness for going into some dark corner with a produce buyer, and, with trembling hands, counting whatever money the latter will give him in actual cash. Or, if he cannot sell to a produce buyer, he will ship on consignment to glutted markets where his crops, joining those of thousands of other growers suffering from the same disease, temporarily demoralizes values. No trustworthy cure for this disease has ever been found. Once attacked, the patient can only allow it to run its course. It ends when his crop has been sold below cost of production, bleeding of his pocketbook, bringing relief of mind. The real remedy is prevention, and the best treatment is mental rather than medical. During the season when there is danger, every grower should build up within himself confidence, assurance that the world will hold together until after harvest, that prices will strengthen when gluts caused by this disease have run their course, and that patience is as necessary in making a profit as any thing done in actually producing the crop!"

If this had been written of the conditions in the California honey market it would not have been—in fact, *could* not have been—any nearer the truth. The California honey market undergoes a violent attack through the producers annually; and if the disease could be cured we should all profit by it.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



CARING FOR EMPTY EXTRACTING COMBS IN THE SOUTH.

One of the problems with the beekeepers in the South is that of combating the ravages of the moth larvæ, which, if not carefully watched, may mean damaging results to the amount of many dollars in a very short time. They are the most serious enemies to empty combs; and even if they be left unprotected for only a few days their inroads may ruin the best of combs in short order.

Occasionally it becomes necessary to stack the supers containing the freshly extracted combs up near the honey-house before returning them to the outyards. Sometimes they remain here more than a week, and even longer if unfavorable weather and other circumstances delay the work. It is during these periods that the greater danger from their depredation lies. We have experienced some losses ourselves, as well as having seen some of the disastrous results of their work to other beekeepers.

Our remedy now, when we have a large number of these supers stacked up, is to set four stacks of them in a block, close together, about eight to ten feet high. On top of the stack, by means of a step-ladder, we set an empty shallow super into which we place two of the cheap heavy paper picnic plates, and pour into them a quantity of bisulphide of carbon, or "high life." Then we lay a hive-cover on top of each stack of supers, letting them fit as closely as possible, and over the whole block of the four stacks we then place snugly a large heavy duck wagon-sheet or tarpaulin. This reaches nearly to the bottom of the stacks if the supers are piled very high; but we have found the work of the gas just as effective as when the supers are entirely covered. The propolis and wax on the edges of the supers, with the addition of the weight of the supers themselves, tend to seal the hive intersections completely enough so that it is not necessary to paste paper over these as has been often suggested. Our idea of treating these supers is to accomplish the results with as little labor and expense as possible, and we have found the method quite satisfactory. The additional protection of the tarpaulin prevents the air drafts from disturbing the gas fumes within.

SELLING A LARGE CROP OF HONEY.

"Producing a crop of honey is one thing, but selling it is quite another thing," is an old saying that has been often repeated. We have many good beekeepers who are very poor sellers; and unless somebody else sold their honey for them they would have to go out of the producing business.

* * *

OUR NEW STATE ENTOMOLOGIST.

The beekeepers of Texas are well aware that I have always been deeply interested in the welfare of our worthy industry. Because of this interest I was prompted to urge the co-operation of the Texas beekeepers in the Sept. 15th issue of GLEANINGS, in the foul-brood-eradication work in this state.

Since this article appeared I have received a very encouraging letter from Director Bonnie Youngblood, of the Texas Experiment Station, assuring us his full support in the work, and the proper expenditure of the appropriation we were so fortunate as to get. Also Prof. F. B. Paddock, our new State Entomologist, has emphasized my recent request for co-operation in a letter which follows:

Hon. Louis H. Scholl:—More than likely you are aware by this time of the appointment of Director Youngblood in regard to Mr. Newell's successor as State Entomologist. In that capacity I am writing you at this time to thank you for the article which appeared in the Sept. 15th issue of GLEANINGS. You have said much of solid truth in that article.

Director Youngblood and myself are very anxious that the beekeepers of the state should get the benefits of the foul-brood law and the appropriations made to support it, both of which have been secured very largely through their efforts and interest. Personally I feel it my duty to give the beekeepers everything possible under the conditions. You are well aware of the fact that we cannot properly conduct the foul-brood-eradication work without the co-operation of the beekeepers of the state. We hope that every beekeeper will follow your suggestions to work hand in hand with the State Entomologist, for, as you say, in this way only can great good come from the work which is now started. We also hope that the beekeepers will correspond with this office in regard to foul-brood-eradication work and the beekeeping problems of the state. Truly we have the chance of a lifetime to do some good work along this line. I certainly trust that the beekeepers will feel satisfied with the results which we hope to obtain in the foul-brood-eradication work in the next two years with a liberal appropriation. I shall ask your hearty co-operation with this office in the work which we are trying to do. By working together we can accomplish much more than by working apart. I certainly trust that your services will be extended to this office in the future as they were in the past.

F. B. PADDOCK,
State Entomologist.

College Station, Tex., Oct. 15.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



GATHERING POLLEN; POINTED QUEEN-CELLS.

"Will you tell us why bees gather pollen more plentifully in the early part of the day than later?"

I have heard it said that pollen is always fresh and pliable in the early morning hours; and as the day advances, the sun getting higher, the pollen gets too dry to gather easily, and so the work is given up. Another reason which has been given is that the flowers secrete nectar more freely in the latter part of the day, so in their eagerness to secure this nectar they give up or forget all about the pollen till another morning. Whatever of truth there may be in these reasons given, I suspect that in many varieties of flowers like corn, sorrel, narrow-leafed plantain, etc., the pollen is either gathered by the bees or falls off with each rising breeze to do its proper work early in the day, so that the bees have none to gather later.

It may be that, when honey is abundant, carriers of pollen are scarce; but is it not true that when the hard maple and white clover are yielding nectar abundantly pollen is also gathered throughout the whole day? In times when the hard maple blossoms freely I have seen the lengthening cells along the tops of the combs sparkling with nectar, and at the same time the combs next the outside of the brood-nest may be so packed with pollen that the queen has to go clear around to the opposite side of the comb to get a chance to lay her eggs for the expansion of the brood into the next comb. Then with the clover we have pollen and honey gathered at the same time, to the detriment of many a section of honey. Some claim that bees do not gather pollen from clover, as they never see bees with loads of pollen (in clover bloom) before the bees begin to secure nectar, it being a well-established fact that prior to 7:30 A. M. very little nectar is gathered from any of the clovers, on account of the nectar being too thin from the morning dew for paying work. Such a claim is based on careless observation, as clover pollen is not as readily seen as most other kinds, it being a darkish brown. Clover pollen seems to be the only pollen which is covered with honey, and the honey sealed over, thus perfectly preserving it for early spring brooding.

"I notice that some queen-cells during the swarming season are more pointed than others. Which are better—the pointed ones or those round and smooth on the end?"

I cannot see that the wax put on the cell at the end has anything to do with the value of the inmate of the cell. I am inclined to think that the shape of the cell when first finished is due to the peculiarity of the bees building the cells. The real length of the cell is determined by the cocoon spun by the royal occupant. I have never noticed any difference in the shape of the points of queen-cells internally; but often, after cells are capped, the bees decorate the free end with a point of wax so as to make it look much longer and sharper. These cells will all be nicely rounded off in a few days, as this wax is generally carefully removed before cells are ready to hatch.

"I see that you have 'started something' by telling how a queen pipes. But I fear some of the discussion is not orthodox."

Sorry our correspondent does not specify what he considers unorthodox. Dr. Miller, p. 835, quotes Baron Berlepsch, who would have us understand all queens quahk at their maturity. This is certainly a mistake, as all know who have seen a mature queen emerging from her cell. Such queens are as white, weak, and fuzzy, as are the mature workers when they come out of their cells. It is only as either of these partake of food that they begin to assert themselves. I am led to believe that no queen ever piped or quahked in less time than 18 hours after she had taken food; and the first of any batch of queens emerging comes out white and fuzzy, as I have often proven by close observation during more than forty years.

The editor, p. 790, and p. 835, would make a poor showing, only that he tells us that he does not know very much about this whole proposition. He tells us about quahking queens having "less air," and refers to the waxen cells as being nearly air-tight, while all close observers know that no queen ever quahks until she has made an incision through the capping of her cell of sufficient extent to thrust her tongue through and partake of food given her by bees outside. Here is where Arthur C. Miller fell down in his theory that queens are never fed only as they lay hold of the workers and demand food by force. As Dr. Miller says, the piping queen gives the challenge, and then all the queens in their cells which have been fed by the workers for eighteen hours or more go to quahking. A quahking queen is held in the cell by a few bees holding the cell-cover on immediately on her maturity, and the cover is never so held except when another queen has her liberty in the hive.

GENERAL CORRESPONDENCE

EIGHT OR TEN FRAME HIVES

BY E. F. ATWATER

There have been some differences of opinion as to the proper inside widths of our "standard" hives. As I have done a large part of the frame manipulation of an average of 1000 colonies, from one to six stories high, for a number of years, perhaps my opinion may have some weight.

C. P. Dadant says, "Properly made hives should have the same space, per frame, whether they are twelve-frame hives or six-frame." Dr. Miller says, "Aye, they should have; but they don't have—at least eight-frame and ten-frame hives don't."

The inside width of the standard eight-frame hive is 12⅜ inches, or 1⅜ inches more than is occupied by the eight self-spacing frames (which occupy 11 inches). The standard ten-frame hive is 14¼ inches wide inside, though one manufacturer has adopted a new width of 14½ inches.

Now, as the eight-frame hive is admittedly going out, there is no need to correct its shortcomings. As the eight-frame hive has room for eight frames, and a thin division-board (not over ⅜ inch thick), it is seriously faulty. That flimsy, worthless follower is one of the worst nuisances ever put in a hive.

If propolis is at all plentiful the division-board is often broken when being removed, and sooner or later is left out entirely, and the self-spacing feature of the frames virtually destroyed. If tightly crowded together, comb will be built at the sides, as there is too much space there.

The great mistake in the first place was in not making a nine-frame hive. Then the advocate of an eight-frame brood-nest could use eight frames and a heavy dummy, to take the place of the ninth frame. Upon the removal of the dummy there would be ample room to manipulate the frames. The heavy dummy would last for years—nothing flimsy about it.

For several years I had 200 hives with sides only ⅝ inch thick, which gave a nine-frame space inside, outside width 14 inches. These tier to good advantage with all eight-frame equipment, and contain eight frames and a heavy dummy. They were far more satisfactory for brood-nests than the usual eight-frame inside width with the toy division-board, and had the additional advantage of giving a little more room for honey, when used as extracting-supers. Sometimes we used nine frames in the brood-nest.

If such nine-frame hive had been adopted years ago, today it might easily be an almost universal standard, as the ten-frame is not enough larger to justify the existence of two sizes. The nine-frame hive is extensively used in Utah and California.

But the tide has set in so strongly to the ten-frame hive, and tens of thousands of them are in use, of a width of 14¼ inside, 16 outside. Anything wider makes endless confusion for those who have telescope lids. Therefore I am confident that it is a serious mistake to make the ten-frame hive 16¼ width outside.

No one with much experience with the Hoffman frame will contend that the 16¼ width gives room for the use of even the hopelessly frail division-board beside the frames. True, at times the removal of the first Hoffman frame is quite difficult, with the standard width, outside, of 16 inches or 14¼ inside.

If a little more space is desirable, better by far to continue the old sixteen-inch standard width, outside, and make the sides of 13-16, or even ¾ inch lumber, to gain ⅛ or ¼ inch more inside width. I have thousands of hive sides ¾ to 13-16 inch thick, and there is no appreciable difference in strength or durability, compared with the full ⅞ thickness.

This change should meet the approval of all supply dealers, as even now several firms have had to give up the use of full ⅞-inch lumber, as most mills do not saw lumber that can be dressed on two sides, and be over 13-16 inch thick.

If the advocates of the eight-frame hives could be compelled for five years to use the ten-frame size, with nine frames and a heavy dummy, there would not thereafter be much call for eight-frame hives. The ten-frame hive with nine frames and a heavy dummy, or division-board, is a splendid comb-honey hive, and, if you have a good ten-frame strain of bees you can use the full ten-frame brood-nest.

For many years I was an advocate of the eight-frame hive, but using many of the tens all along. A few years ago experience proved that anything that could be done with the small hive could be as well or

better accomplished with the ten-frame hive. We now have far more of the ten-frame size—several yards contain no other.

In conclusion I want to urge that manufacturers do not change the old standard outside width of 16 inches for the ten-frame hive; but if ⅛ to ¼ inch more inside width is needed, make the hive sides of 13-16 or ¾ inch lumber.

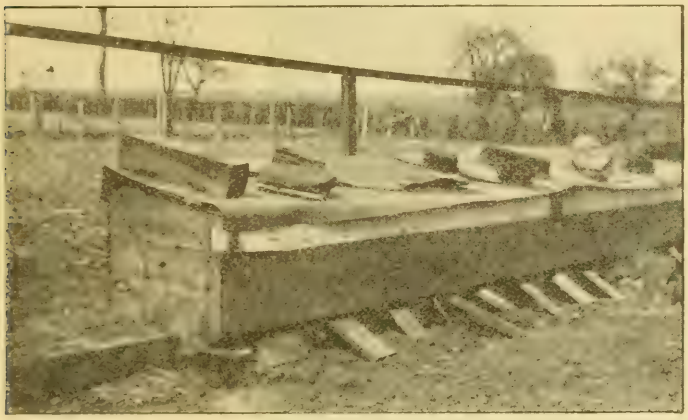
Meridian, Idaho.

A WINTER-CASE HOLDING A WHOLE ROW OF HIVES

BY R. C. GIFFORD

Recently a number of the "big fellows" of the beekeeping world have been advocating the use of square winter-cases which protect four colonies. In these cases two of the colonies have to face either east or south, and the other two north or west. As one of the very "little fellows" of the beekeeping world I can't help feeling that this plan would be anything but successful in the hands of the average folks like myself.

In this locality there is a lot of damp cold wind during the winter. We use the expression "It chills you to the backbone" to describe it. I'm afraid if my bees had to sit with their open entrances toward the north or west all winter this wind would chill them to their backbones, and I should have nothing but some frames and hives when spring came.



The long case is cheap, and has always given perfect satisfaction.

Another thing to be considered is the peace and comfort of the beekeeper. I think the majority of beekeepers have bees because they really like them. Well, imagine going to your warm comfortable bed some night with half of your hives facing the north and west, when the wind is moaning around the house and even driving the snow through the tiny cracks around your bedroom window. You would not enjoy the night's rest, would you?

I have always used the long case recommended by several. It has always given perfect satisfaction. It is also much cheaper because any kind of boards can be used for the top and sides. Of course the two ends for the case are built for that purpose, and nailed securely, because the long boards are all fastened to them. The ends I use are 28 inches wide by 23 high, and have a three-inch slope toward the front.

The tar-paper cover is held in place along the north side and corners of the south side by nails driven through long narrow boards. Weights hold it securely on the top. With this method, if the paper is put on and taken off during the middle of the day while it is soft from the sun's rays, it can be kept in good condition for several years. Then, too, the paper stays where it belongs. The first year, I nailed the paper on securely with the nails which come with it. In the middle of the winter we had a severe blizzard, and the wind managed to get under that stuff and tear it all to pieces. Of course it had to be replaced immediately, so the entire family had to wade out among the snowdrifts and literally sit on the paper while I fastened it down with weights and nails driven through lath.

WINTER STORES.

On the first frosty morning after the honey-flow is over, the colonies are weighed. Two people do the work because it is too heavy and awkward for one. The colonies are weighed, one at a time, on platform scales which are trundled wherever desired, on a wheelbarrow. Each colony has to weigh 35 pounds after the weight of the hive-body, bottom-board, and cover are deducted. If it doesn't, sugar syrup is fed.

When this work is done on a cool morning the bees are not disturbed so much, and

they do not disturb us so much. To help along still more, so they won't disturb us at all, we lay a damp cloth across the entrance just before we set the colony on the scales, and leave it there several minutes after the colony has been returned to the stand. If four damp cloths are used, the hives can be handled as fast as two people can work, and the bees won't be likely to raise a rumpus.

North East, Md.

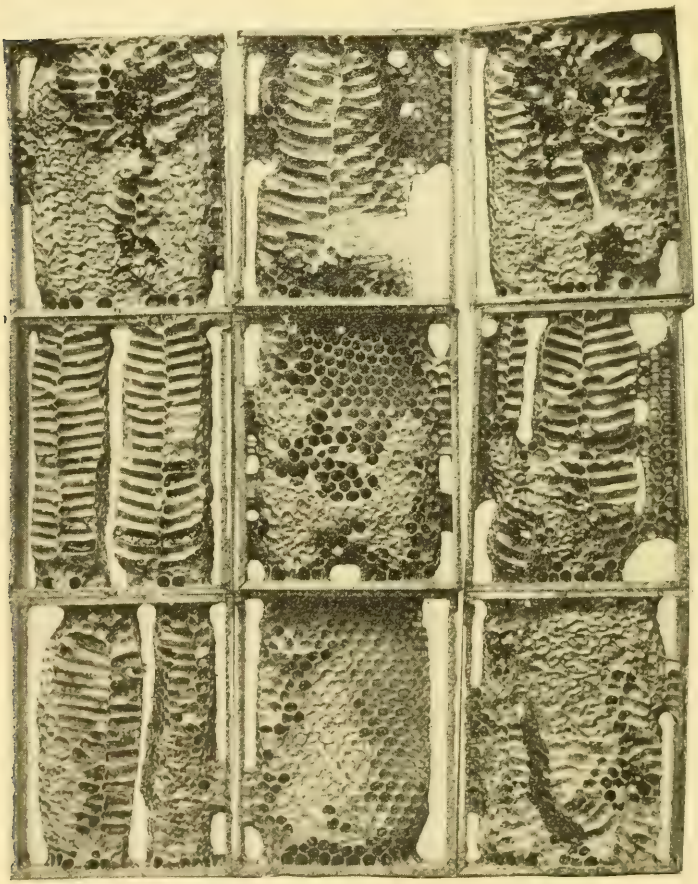
[See editorial comment elsewhere.—Ed.]

THE VALUE OF ITALIAN BEES IN FIGHTING EUROPEAN FOUL BROOD

BY H. HARLEY SELWYN

It seems to me our veteran Canadian beekeeper, Mr. Holtermann, needs some cheering up on the matter of European foul brood (see Gleanings, page 707, Sept. 1). It does sound odd to me to hear of one who has been so long in the business meeting only now with this disease. My bees and European foul brood have grown up together, and I feel I know its vagaries so well it causes me little more worry than an absconding swarm in August. In fact, I have such peace of mind in regard to it now that I hope to lighten our good friend of this incubus which apparently has come to burden his mind.

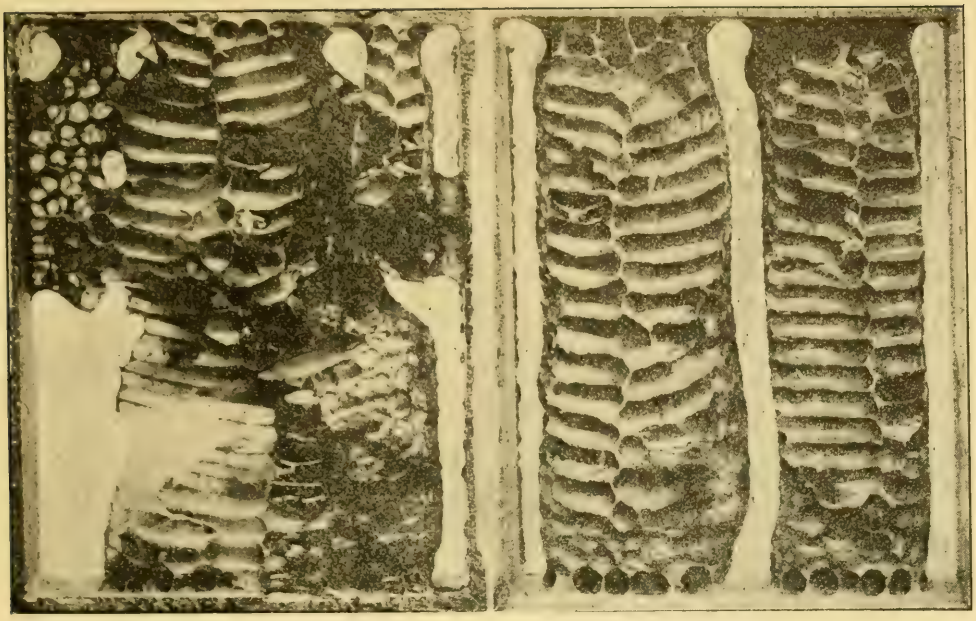
To sum the whole matter up in a nutshell, I believe in and practice the three words, "Keep Italian bees." They will look after European foul brood, and if Mr. Holtermann or any one else does the same his troubles will shortly be at an end.



Sections placed in a super without starters. Note the different construction of comb in each section, and imagine the trouble in removing them from the super. Photographed by Charles Y. Hake.

While on the topic of European foul brood there are some observations I should like to make. These are based on experience, and may be useful to those having yet to encounter the disease. In the first place, let me say that I would have Italianized *before* the *disease* was brought to the yard had I known then what I know now. The penalty I paid was to lose a crop of honey, render down over 1600 combs, and work day and night to save any bees at all.

Notwithstanding the fact that Italians can rise up in the midst of European foul brood and overcome it, I believe that they *must* suffer first (some worse than others) before becoming immune to other ravages. This question of immunity should, in my opinion, receive more consideration. Disease comes to a man's yard. He Italianizes,

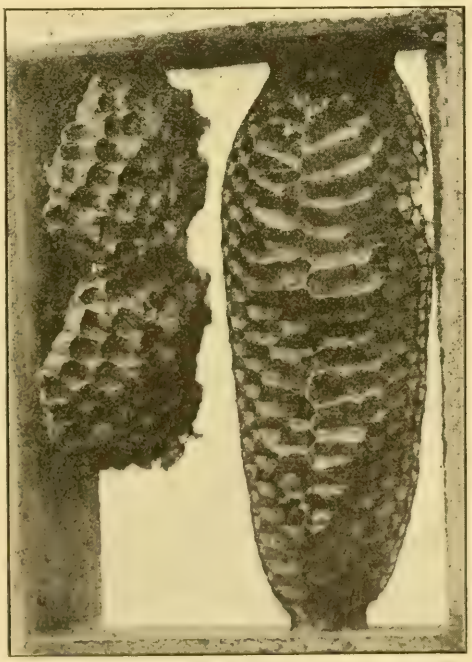


Showing more in detail how the bees worked without starters. Photographed by Hake.

and works hard for several years treating disease by shaking, requeening, and feeding. After a time he finds the colonies are all quite healthy. Such conditions hold good as long as he keeps his pure-bred Italian queens heading each colony.

It is to be understood that he has done his own breeding and selecting from those hives surmounting disease most rapidly. Then comes the day when a very dark cross dominates a colony. At the first honey dearth of consequence this hive shows diseased larvæ badly. Where did the disease come from? That is what is puzzling many beekeepers today. At any rate the point I wish to make is this: Italians must become immune; and as long as that strain continues in a yard, everything goes well. To carry the point further, I would also state disease might be *prevented* in many another man's yard by the introduction and use of such immune strains of bees. In fact, I have seen it done.

Furthermore, there is the matter of the spread of European foul brood through shipment of colonies of bees to outside points. I should like to inquire whether the government is going to be able to control this spread of disease when Italian colonies can harbor the disease from season to season without its appearance until the chance comes for a reversion to the black strain of bee. It does not seem to me that any amount of quarantining will bring it to light under such conditions. In my own yard, for instance, I feel I am safe in offering to have the best foul-brood expert in Canada come and examine every hive for



A wasp-nest beside a honeycomb in the section. Photographed by Hake.

disease without a chance of his finding anything wrong. Yet I know the disease is present.

Last spring, during my absence for a few days, Mr. P. H. Selwyn put out some dozen supers which had been stored away since disease first hit this district. They contained dried-up larvæ and honey—the very best of materials to distribute disease wholesale. These supers were put on strong colonies to receive the surplus, then beginning to come in. At that time my hives were, to all appearances, clean and strong. Had this taken place in a yard of blacks or Italians that never had encountered the disease, I have a fairly good idea what would have followed. What do you suppose did happen? The immunity theory worked as I have outlined, and nothing ever came of the unintentional experiment.

There is work here for investigation by the government officials in connection with apiculture. It is no joke for the man dependent on his bread and butter from the bees to experiment with European foul brood.

Mr. Sladen, Experimental Farm, Ottawa, did, I believe, try something of this sort with the apiary in his charge, but I have not learned the outcome of it. I know he wished to secure from me a rattling good case of disease (hive and all) to try to reinfect his bees.

Kirk's Ferry, Quebec.

EUROPEAN FOUL BROOD NOT A CALAMITY

BY EARL SEAMANS

I consider European foul brood a blessing. We have had it in Wyoming County for the past eight or ten years, and every year I have had some of it in my own yard, and in no year have I failed to secure a crop of honey. This season I found five colonies affected with it in a yard of fifty-eight colonies.

European foul brood has compelled me to purchase several Italian queens each year to replace diseased queens. This has increased the value of my stock, which has proved to be one blessing. Then the disease has put a number of slip-shod beekeepers out of business. That is another blessing. I have never lost or destroyed a single comb on account of this disease. When it first appeared around here I sent for the "Alexander Book." That book was worth its weight in gold to me.

A hive containing European foul brood should be labeled "Diseased queen," and treated accordingly. The queen, and not the bees, is the source of trouble. I have placed as many as three upper stories filled with foul brood on top of a healthy colony with a sheet of queen-excluding zinc under them to prevent the queen going up, and I have never had the disease carried from the top down into the bottom.

This summer I caged a queen from a diseased colony about a week, and then put her and the bees on clean combs. In one month that colony was as bad as ever, which proves that the queen carries the disease. Shaking the bees into a hive filled with starters or full sheets of foundation will do no good unless the queen that was in the diseased colony is killed.

Ten years ago my brother had several hundred colonies in this section when he found European foul brood. He removed all the brood and honey and destroyed it; then he charred the hive and put the bees and queen back on full sheets of foundation. Did it do any good? No. The queen was diseased, and carried the disease into the clean hive. He now has less than fifty colonies.

Kill the diseased queen; lift out all the frames of bees, brood, and honey; put a frame of clean brood and some clean combs in the hive, and then shake the bees in front of the hive, giving them a good Italian queen. If during a honey-flow the queen can be run in with the bees, at other times she should be introduced by the cage method. The frames containing the foul brood can be placed on top over a sheet of perforated zinc, or may be put over a sheet of perforated zinc on another colony without any danger of the disease being carried below.

This summer I tried to run in a valuable queen with the bees at the entrance. They killed the attendant bees and balled the queen. I threw the ball of bees and queen into a pail of lukewarm water. When they liberated her I put her back into the cage and put a number of newly hatched bees from the same colony into the cage with her. Then I placed the cage on top of the frames and let the bees "eat her out." They accepted her all right.

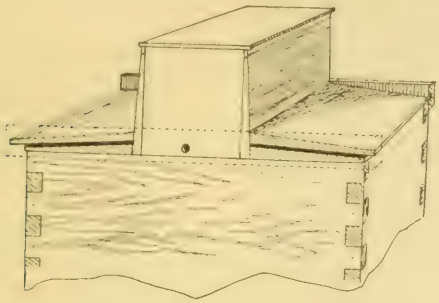
I have secured a good crop of clover and buckwheat honey. On the first day of September one of my hives sent out a very large prime swarm, which is the latest date I ever had one.

Factoryville, Pa.

A NEW WRINKLE IN HIVE-COVERS

BY E. M. CROW

The accompanying illustration shows a device which I am using with a great deal of satisfaction in my beeyard. For want of a better name it might be called a combination hive-cover and nucleus-box.



The box is made of two pieces of 5½-inch bevel siding 20 inches long (½-inch stuff of even thickness would be better), and two end blocks ⅞ x 5 x 5⅝ inches deep. It will hold three shallow extracting-frames. Projecting from the lower edge of the box on either side is a double cover made of two pieces of bevel siding 20 inches long, held apart by three ⅜-inch cleats. This makes a cover just right for a ten-frame hive. A ⅞-inch board, 6 inches wide and 20 long, makes a good cover for the nucleus-box part.

The uses to which this appliance may be put are varied. In the first place it is a No. 1 hive-cover for hot or cold weather; and if kept painted it will last as long as any other cover. Should you wish to requeen a colony, put a frame of brood and bees with a ripe cell in the box over the doomed queen, with a wire cloth between, and the flight-hole open to the rear. When the new queen has mated, and is laying, quietly remove the old queen and the wire cloth, and there you are with no time lost.

Do you wish to feed a colony? You have but to place four pepper-box feeders in the box directly on the brood-frames, and the work is done. Queen-rearing can be carried on in almost any kind of weather by the use of these boxes over a strong colony with wire cloth between.

The use of the bevel siding for the roof part gives a good pitch to the upper surface while the under side is held level by end cleats.

De Soto, Mo.

THE ISLE OF WIGHT DISEASE IN WASHINGTON

BY T. DWIGHT WHITMAN

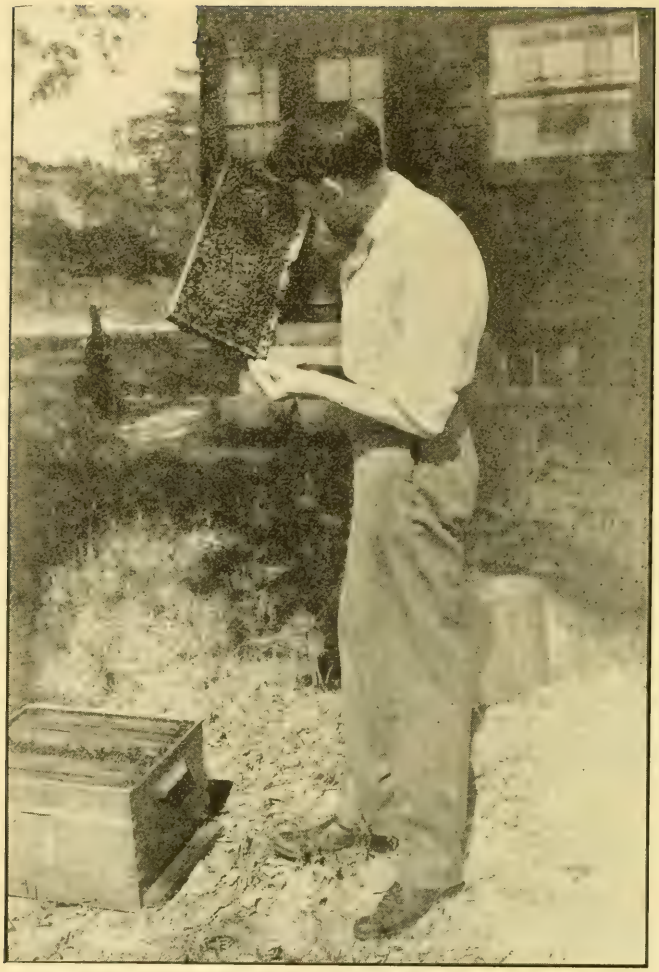
There was practically no crop of honey locally, and considerable loss of bees from what I consider a form of the disease known as Isle of Wight disease. Either from this disease or the fumes from our local smelter, which was treating more copper than usual, and which killed the peas and beans, and showed on the foliage of my trees, I lost eighteen out of twenty stands. The two that survived were helped out with brood from Puyallup. I used the uncapped honey from the hives that died to see if it had any injurious effect on the bees. Apparently it did not. Only the adult bees were affected, the loss of brood being from chilling. The colonies lost strength so rapidly that they could not take care of the brood they had. The queen laid to the last, but with fewer and fewer eggs.

Of the two hives that I have left, one still shows symptoms of the disease. The other seems to have got entirely rid of it. Both were treated exactly alike, and both fed with the uncapped honey from the stands which died.

I am watching them closely to see what the outcome will be. The bees were working and carrying in pollen in both hives today. Goldenrod and catnip are in bloom.

The disease, whatever it was, seemed to affect old and young adult bees except the drones, which were not affected. In the early morning the ground in front of the hives would be covered with bees seemingly unable to fly. If the sun came out and warmed them up, a large proportion would fly away, but few would return to the hive. Their bodies would be distended. When squeezed, some appeared to be empty, others full of a white watery matter, others as when they have dysentery. Dead bees had protruding tongues. There was no trembling, nor motions of the wings. They gathered in bunches on a rock or piece of wood in front of the hive, and seemed without ambition to do anything.

Tacoma, Wash.



TREATING AMERICAN FOUL BROOD

"A Movie Scenario"

BY BENJAMIN WALLACE DOUGLASS

Each frame in the hive should be carefully inspected for foul brood.

If the frame is held upside down it is very easy to detect the presence of the American foul-brood "scales" on the side of the cells.



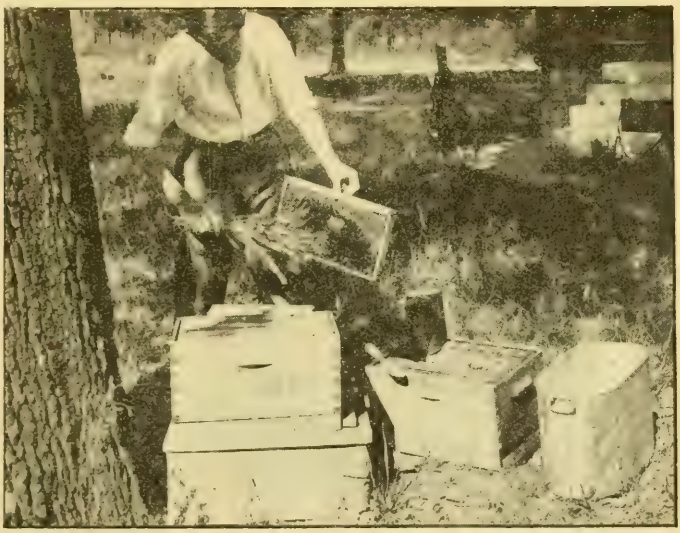
When foul brood has been found, the beekeeper should at once make preparations to treat the disease.

A new hive is provided with starters of foundation. A wash-boiler of water is also near at hand.



The old hive is set at one side and the new hive is placed on the old hive-stand.

The bees are now ready to be brushed into the new hive. They should not be shaken, as to do so will also shake some of the infected honey in with them.



The bees are now brushed into the new hive. The best brush is one made of a wisp of grass or weeds. After use it can be burned.



As soon as the bees have been removed from the diseased comb, the entire comb should be placed in a wash-boiler containing water. This prevents the bees from gathering on the old comb again, and prevents robbing.

Trevlac, Ind.

RANDOM NOTES ON BEE BOTANY

The Largest Flower Cluster in the World

BY JOHN H. LOVELL

The Talipot palm grows for thirty or more years, until it reaches the height of sixty feet without blooming once. Its home is in the damp forests of Ceylon. Then from its apex there springs an enormous cluster of flowers 40 feet long by 35 feet wide, composed of innumerable blossoms. The flowering period lasts for about four weeks. As soon as the fruit matures the whole tree dies like the century plant. It blooms only once.

FOLIAGE AS A SOURCE OF NECTAR.

The leaves of the partridge pea and of cotton are the source of a large quantity of nectar. When the atmospheric conditions are just right a bee can often obtain a load from one or two glands. Phillips states that majugua, a common plant in Porto Rico, has extra-floral nectaries on the leaves, and that he has seen ants working on them. The leaves of many of our native herbs and trees also possess nectaries, as the vetches, castor-oil bean, the brambles, cherries and plum, poplars and maples; but, unfortunately, they secrete very little nectar. But could we not obtain by selection varieties that would yield nectar abundantly? If this could be done the possibilities can hardly be imagined. Various ferns, which are, of course, without flowers, also have nectaries.

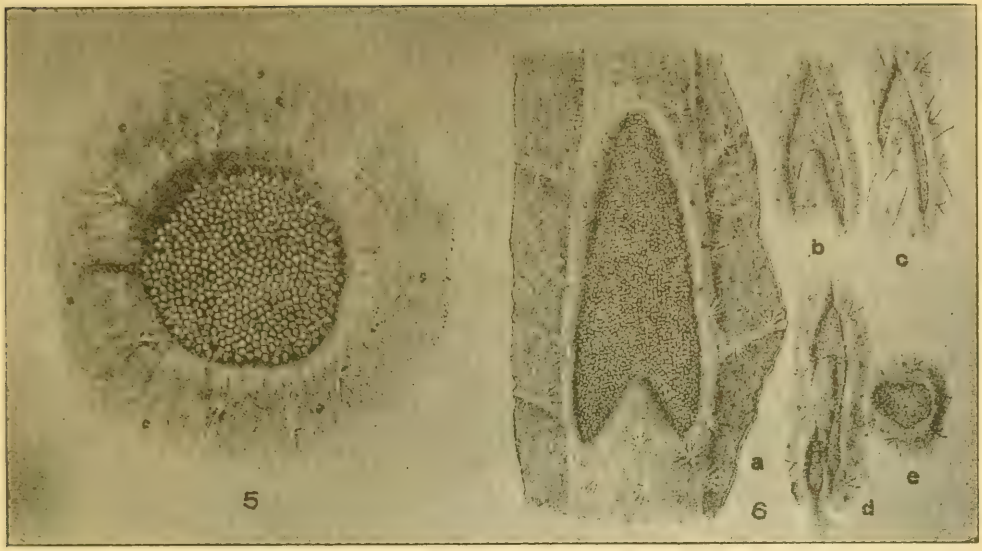
THE USEFUL BLUEGUM.

In the delta of the Orinoco River there grows the mauritia palm-tree, on which a whole tribe of Indians depends for existence. They dwell among its branches, and it affords them fuel, food, wine, cloth, twine, etc. It is well called the "tree of life."

The bluegum (*Eucalyptus globulus*), now largely planted in California, has almost as many uses. The very hard close-grained wood is valuable for fuel, furniture, telegraph-poles, railway-ties, vehicles, fence-posts, wood paving, etc. The flowers are a source of much honey; the leaves and twigs yield a medicinal oil, and the bark may prove of importance in tanning and paper-making. The trees form excellent wind-breaks, destroy malaria, drain damp soil, and are a handsome landscape tree. It is the fastest-growing tree in the world, and one of the tallest. Photographs of the flow-



The Talipot palm (*Corypha umbraculata*) in bloom. The largest flower-cluster in the world, 40 feet tall by 35 feet wide. (From a photograph by Miss Scidmore.)



Leaf nectaries of cotton. 5. Outer involucral gland. 6, a, b, c, d, e, nectaries on leaves. From Bulletin 131, Bureau of Plant Industry.)

ers and fruit of many species of eucalyptus are given in Bulletin 225, Agr. Exp. Station, Berkeley, Cal. The picture of the flower and nut-like fruits of the bluegum is natural size.

Waldoboro, Maine.

BEES IN THE HONEY-HOUSE

BY FRANK L. POLLOCK

Bee-escapes on the honey-house windows at extracting time have proved a two-edged sword with me. The escaping bees return and hover about the screen windows as long as they live, and sometimes succeed in finding a way in through some tiny unsuspected hole. I was forced to adopt the Townsend method of closing the escapes till after extracting, and then carrying out a big cluster of bees all at once. But it is annoying to have the honey-house full of bees while extracting is going on, crawling over the floor, getting into the honey, and causing innumerable stings, especially to the uncapper.

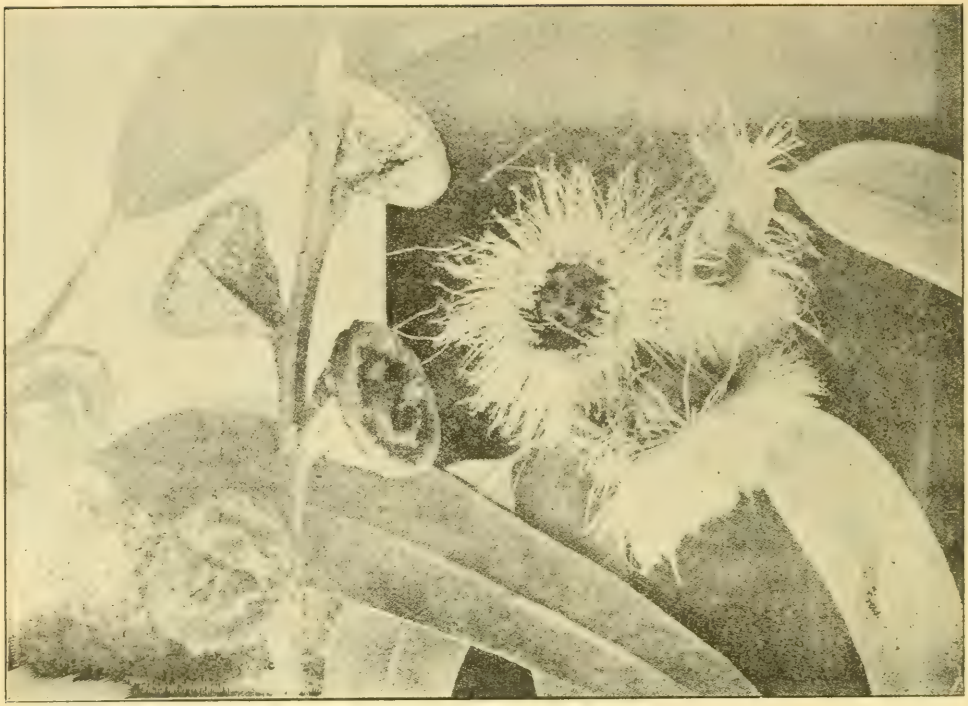
I have hit upon the following device, which turned out very useful. In each upper corner of the screen window is a cone escape, with a pretty large opening. This does not lead into the open air at all, but into a box about a foot square, hung on the outside of the honey-house by two hooks. This box has two sides of wire cloth, and one of the wooden sides is on hinges, and can be opened out like a door.

The large cone escapes keep the window well clear of bees all the time, and they go out into this box and no further. A few may possibly come back. At the end of the day the box may be unhooked, carried into the yard, and the bees dumped out, without any danger of their locating the screen window.

I was forced to this expedient by my bees developing a peculiarly ingenious form of robbing this summer. The bees that were carried into the honey-house on the combs presently seemed to content themselves pretty well, and I discovered that they were doing a lond-office business by carrying honey to the screen window and passing it through to the bees on the outside. Having unloaded in this way they went back to the uncapping-box for more.

I sat and watched them at this for some time, and I observed that almost every bee that took wing loaded from the cappings ejected a fine spray of fluid before reaching the window. This has often been observed when bees were taking thin nectar, and is supposed to be the superfluous water; but this was very thick well-ripened honey. Where did that surplus water come from?

Incidentally I would venture to say that I think the plain wire cone is the best form of bee-escape yet devised. An escape-board



Flower and fruit of the bluegum (*Eucalyptus globulus*). Natural size. (From Bulletin Agr. Exp. Sta., Cal.)

with an opening two or three inches in diameter, and a single flat cone on the other side, will clear a super considerably quicker than any other. It is unnecessary to have several cones within each other, as in the Lareese escape. A single triangle with one of the corners open wide enough for a drone to pass is all that is needed. I have watched bees trying to pass out the Porter escape. They do not like to force the springs aside, and will hesitate and back away, causing a great deal of delay, while they go instantly through the open cone. It is true a few bees may pass back through the cone; but a dozen odd bees in the super are of no consequence, and I have never found more than that.

Stouffville, Ont., Can.

NOTES FROM THE APIARY; A NEW METHOD FOR SECTION HONEY

BY JOSEPH GRAY

Any method of comb-honey production that will enable the extracting man to find new outlets for his honey at small initial expense is worthy of trial.

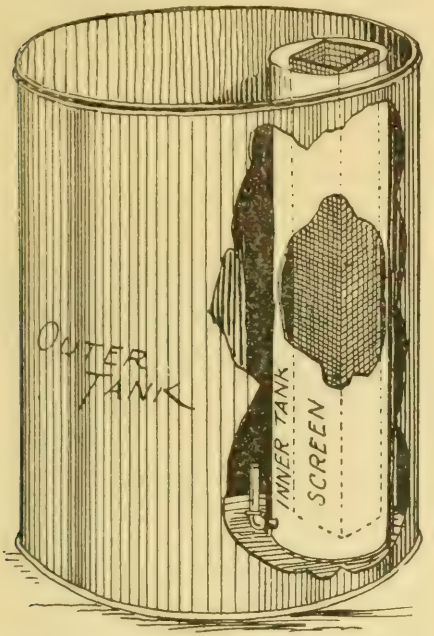
My supers were filled with six extracting-combs and one section frame, the latter occupying the center of the super. The section-frame was made of plain 1½-inch material, and held eight plain sections 4¼ x 4¼ x 1½. The sections, when fitted with full sheets of foundation and separators, were made from castaway fruit-boxes.

The only parts cut by machine were the 3-16-inch strips for the edge of the big separator. The two separators were held in place at the bottom with straps of tin so that, when set in, the section-frame was properly spaced. The advantage of this method is that the frame only is spaced, not each individual section, and no new appliance is needed in an extracting apiary except the frame and separators. This leaves the apiarist free to take both comb and extracted honey from his strongest colonies.

CONDITIONING HONEY.

As we use a tank of 6000 lbs. capacity, I wanted a reliable way to leave my honey in as good condition as possible when filling cans. I found it by having a tank within a

tank, and a full-length wire-cloth screen within the inner tank. The honey is siphoned from the inner tank to the outer



tank, as shown is the illustration; and as the honey is also siphoned into the screen I get a clean well-ripened article.

HIVE PLIERS.

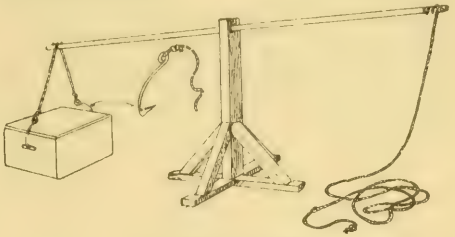
I note the editor is recommending the use of hive-pliers or tongs for foul-brood inspectors. Why not for the beekeepers? They are time-savers. Mine are in daily use. They will grasp a 10-lb. comb easily with one hand, leaving the other hand free to brush off the bees. Besides fewer stings and quicker work, they save backache.

STAGGERED HIVES.

I had of necessity to crowd my hives under one ramada. In all pictures shown of bees under a shed or ramada they are in one continuous line. To overcome this sameness I staggered the hives; between the first two posts I advanced the four center ones, leaving the two at each end in the original line. Of the next eight I put the second, third, sixth, and seventh forward, leaving the others in their original places. In actual work I was agreeably surprised to find more elbow room.

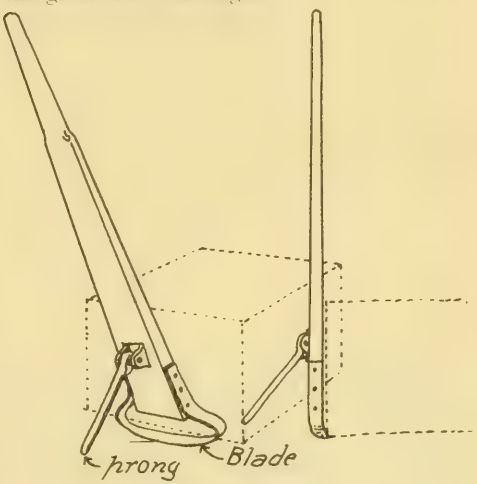
COAL OIL FOR ROBBERS.

When robbing is prevalent the clearing-away of all fresh propolized quilts, extra supers, etc., is important. Never use propolized sack quilts for smoker fuel. With a paint-brush and coal oil, go round each crack of the cover and super of freshly closed hives. Dry soil is a good temporary entrance-closer.



HONEY-LOADER.

Having a considerable amount of honey to load, the task was lightened by a mechanical loader, an upright carrying a cross-beam at one end, with rope and grab-hook, and at the other end a trail-rope. This readily lifted the 140-lb. cases from the ground to the wagon.



PRY FOR CASES.

A pry is made with a wooden shaft, the bottom fitted with a blade and a prong.

The blade is caught against the end of the case; the prong bites the car floor; a pull on the shaft, and the case is in its place.

LEAVES FROM THE RECORD-BOOK.

Dr. Miller keeps a record-book. My hive-cover is a leaf of my record- book; every leaf is thus open to inspection as I walk down the apiary. Take queen-raising:

WANTED BEES	QUEEN	SPARE BEES
STORES	VIRGIN	STORES
CELL	CELL	CELL

There are nine places that are sufficient. In a moment you can tell where to find bees, stores, or cells. In case of cells, four lumps of earth are grouped for four cells.

Suppose you want a choice queen, or more than one. You do not open a hive needlessly, but go only to those with queens. Examine each. If extra good, place on it three clods of earth; if good, two clods; if medium, one clod. Now you have your queen graded according to your judgment.

Heber, Cal.

[This is the second of a series of two articles by Mr. Gray on handy appliances in the apiary.—Ed.]

OKLAHOMA HAS A BEE LAW

BY N. FRED GARDNER

J. E. Lemon, of Grant County, Oklahoma, representative in the Oklahoma legislature, is the man to whom Oklahoma beekeepers should extend grateful thanks for the enactment of the bill introduced in their behalf.

This law became effective June 3, 1915; and while, no doubt, many Oklahoma beekeepers are not aware of its existence, it stands ready to be applied when the need is felt. This bill carries with it the provision that I believe has not been duplicated by any law in any other state, and it remains for time to determine whether or not they are wise. This is to the effect that shipments of bees, queens, honey, etc., must bear certificates of inspection similar to those required by the nursery-inspection laws; or in case of no inspector where shipment originated, that a certificate subscribed and sworn to before a notary public.

The beekeepers of Oklahoma did not give Mr. Lemon the support that he should have had in passing this measure, but he succeeded in putting it through because of the high regard and confidence in which he was held by his colleagues of the legislature.

Geary, Okla.



J. E. Lemon pushed an up-to-date bee-law through the Oklahoma legislature.

CALIFORNIA FIELD MEET IN OCTOBER

BY FLORA M'INTYRE

The Ventura County Beekeepers' Club held a picnic meeting, Oct. 2, at the apiary of Mr. Wm. H. Allen, near Saticoy. Seven or eight automobiles brought the crowd and stood about, lending an air of prosperity to the scene. A long table made of stacked empty hives was provided on which our basket lunches were spread, and also the coffee, doughnuts, sandwiches, and mince pies offered by our host. I regret not having a picture of the scene with the eucalyptus-trees all about, and the apiary a few hundred feet below the festal board.

Our state senator, Dr. Mott, gave a talk on proposed legislation of particular interest to beekeepers. He mentioned especially the plan to establish a state agricultural bureau analogous to the national institution for the same purpose, and having a department devoted to apiculture, this one bureau to replace the various state commissions which now cover somewhat the same ground. He urged the need for educating the legislators and the public in general concerning the contribution of the bees, both directly and indirectly, to the wealth of the state. He remarked that there was some foul brood in the legislature as well as in the apiaries ("fool brood I would call it," afterward remarked a small boy who was in

attendance, with both his ears wide open).

A paper on the benefits of bees to the fruit-grower, by Prof. A. J. Cook, State Horticultural Commissioner, was read before the meeting. Among other things he mentioned the complaint sometimes made against the bees that they carry pear blight. He said that, while it was doubtless possible for bees to spread this disease in the same manner as do other insects, they are only one of a number of agents that do this, and their removal would not greatly affect the amount of pear blight; that the beneficial work of the bees as pollenizing agents vastly outweighs any harm they might do by spreading pear blight.

Among others, President Wood called upon Mr. J. D. Bixby, editor of the *Western Honeybee*, and a visitor from Covina. Mr. Bixby gave some conclusions from his experience with European foul brood, emphasizing the fact that he considered it necessary to melt up all combs containing or having contained diseased brood, but not other combs, in the diseased colony—as, for instance, super combs above a queen-excluder.

The meeting was one of the most interesting the club has had for some time, and would doubtless have been of benefit to some who were kept away perhaps by the rather cool cloudiness of the day.

Ventura, Cal.

A PROCEDURE FOR LATE FALL QUEEN-MATING

BY JOHN L. BYARD

Read before the Hampshire, Hampden, Franklin Beekeepers' Association, March 19, Northampton, Mass.

Having for some time presumed that I could procure select matings of queens during late August or early September, I devised what, perhaps, is a process with some unique features. These do not pertain particularly to the mating of the queens, but more especially to the nucleus in which mating occurs. I first selected a drone colony. This was done late in August. Queen-cells containing maturing queens were then procured, caged, and made ready for introduction. When introduced the queens were left for several weeks without attention, at the end of which time a large percentage of the queens were found mated.

The nuclei were prepared as follows:

Nucleus hives were the combination boxes in which either four full Langstroth frames could be hung or a larger number of Benton frames (one-third the size of the Langstroth frame, and hung in the opposite direction). I first supplied a candy-feeder in the form of a division-board. A frame containing a piece of new bright comb the size of a quarter or fifty-cent piece was then added. Sometimes, instead of this small piece of comb, I supplied a frame with a narrow starter. Two or three frames with starters were also supplied on either side of the center comb.

When the nucleus was prepared, I shook a quart of queenless bees into the hive, closed the entrance, and set the nucleus in the shade. The next day, at about four in the afternoon, the virgin queens having hatched, I ran one into each nucleus, closing the entrance. On the following day I removed the entrance-block, liberating the bees. These nuclei were then without attention for two weeks, after which time I found nine queens laying. It should be stated, however, that in introducing the virgins one was killed and one escaped in handling.



Scene of the Massachusetts convention at Stoughton this summer. The little hives could be opened without smoke or veil.

As a result, from nine virgins thus handled eight were purely mated and one was

doubtful. She is considered doubtful in her purity of mating only as imperfectly marked bees were seen in her nucleus. This may be due, however, to straying bees from nearby hybrid colonies.

The apparent success of these matings, even though they were not tested beyond the limitations of the fall of 1914, suggests at least that there are possibilities in this method of handling queens for pure mating. It is a rather extreme process, yet shows with decisiveness the value of fall manipulation.

With respect to the candy above mentioned, it should be stated that this is a variation of the Fuller candy, which calls for 12 pounds of granulated sugar. The candy which I used was made with nine pounds of granulated sugar and three pounds of coffee A sugar. I consider the coffee A sugar of value because it tends to keep the candy soft, which perhaps enables the bees to work it for a longer time.

In summarizing, I wish to emphasize that I am not aware of previous attempts of using candy and foundation alone, or a small piece of dry comb and candy. This process, together with the procedure late in the season, which is explained, tends to insure purity of mating, are the three items which I wish to report.

THE EDITOR'S VISIT TO GRIFFITH PARK NEAR PASADENA, WITH ITS CELEBRATED BEE ROCK AND BEE TREES

BY E. R. ROOT

In the last issue I referred to the fact that Mr. F. R. Buchanan, a former traveling salesman, and now of Glendale, Cal., took a party of us, including Mrs. Buchanan, Mr. and Mrs. Frank McNay, and myself, to Griffith Park, near Pasadena, Cal. This park, as has been stated, has a peculiar charm and interest for beekeepers in that it contains a natural curiosity in the way of an enormous bee-rock that has many colonies of bees. This rock was shown on the cover of our issue for November 1.

Besides this rock there are a number of bee-trees; but two or them had their bee-cavities so near the ground that the bees could be seen going in and out, without let or hindrance. Mr. Buchanan crawled up on a limb of one of the trees where there was one large knot-hole; and while stationed at that point I went up on a rise of ground, and caught him in the act of looking down into the bee-hole—see Fig. 1.

The other bee-tree is shown in Fig. 2. The entranceway is also within easy reach, and so near the ground, in fact, that Mr. Buchanan on the left and Mr. McNay on the right are looking down into the cavity, into which at the time the bees were going back and forth. Both men, as will be observed, are slightly baldheaded; and had the bees been disposed to be at all obstreperous they might have made the two who were "sticking their noses into other people's business" not a little trouble; but even though Mr. McNay put his hand into the opening there was no hostile demonstration.



FIG. 1. Mr. F. R. Buchanan inspecting the entrance of a bee tree in Griffith Park, California.

Mr. Buchanan



FIG. 2.—Sticking their noses in other people's business.

drove us all over this park, then up around and on top of the mountains, for there are beautiful automobile drives in all directions in the mountains near Pasadena. I shall not soon forget this ride up into the very clouds; for from these heights one can look down on the cities and towns of this beautiful southern California—a country that abounds in bees and beekeepers, for bees seem to be everywhere.

A HOME-MADE BUZZ-SAW.

In our last issue I stated that Mr. McNay had retired, having only one colony of bees with which he amused himself. He also finds pleasure and recreation in other ways. In his back yard he has a workshop with carpenter tools and a home-made buzz-saw made out of an old worn-out bicycle. In Fig. 3 we see the outfit just as Mr. McNay used it in his workshop. The bicycle frame is mounted slightly in front of and beneath the saw-table proper. The rear wheel, minus its pneumatic tire, is mounted directly beneath the saw-table in such a way that the two sprockets are in exact alignment. The bicycle chain, slightly

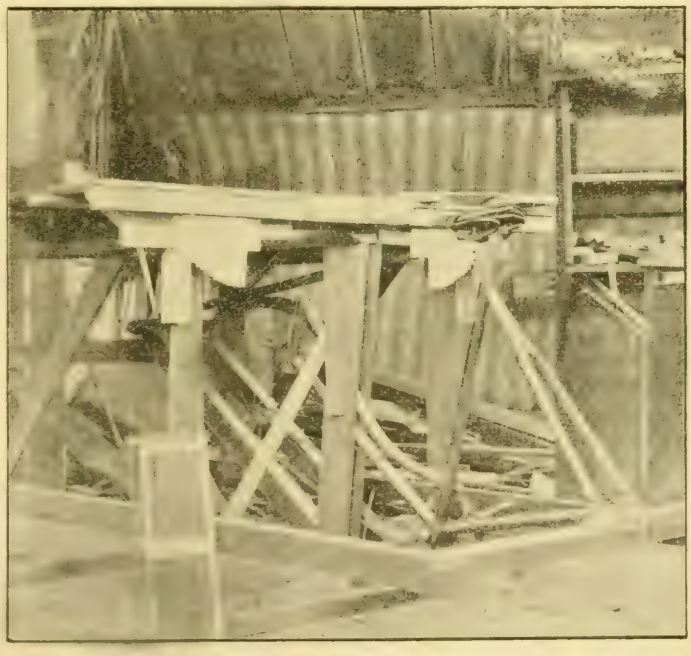


FIG. 3.—Frank McNay's home-made buzz-saw table, using an old bicycle for the motive power.

lengthened out with more links, is made to drive the rear wheel now placed forward under the saw-table from the crank sprocket. Directly over this rear wheel is a little pulley that drives the mandrel of the buzz-saw. A suitable belt runs from the hollowed-out rim of the bicycle wheel to the mandrel above.

The operator places himself on the saddle of the bicycle, his feet on the cranks, when, presto! he can drive his buzz-saw at a high rate of speed.

Mr. McNay says that with this home-made outfit he has made different articles of furniture that decorate his home, and also parts of hives, for with this outfit he can make almost anything he desires, and at the same time it affords him much pleasure.

It should be observed in this connection that Mr. Frank McNay tested out the first Cowan reversible extractor we ever made. Knowing him to be an extensive beekeeper, and capable of judging of the merits of a new device of this sort, we sent him our first model; and when he pronounced it good we went ahead and put the machine on the market—practically the same machine bearing today the name of the "Cowan two-frame rapid extractor."

Mr. F. R. Buchanan, likewise retired, takes his playspells with his big powerful automobile and with the bees. He knows every beekeeper in the vicinity, for he has motored all over the country.

PUT A GUARD OVER YOUR SAW

BY MAJOR SHALLARD

I have an iron guard over mine now; but if I had only put it over earlier I would now have two hands (see p. 863, Oct. 15).

Possibly some particulars of my mishap may be of interest. I was ripping top-bars when my foot slipped on the sawdust, and my left hand came in contact with the saw, cutting the palm across and the thumb off at the bottom joint. As soon as I saw what the trouble was I grabbed the arteries, stopped the engine with my foot, and started off down the road for help. My object was to get away before my wife saw the hand, as she has heart trouble. After going about a mile I met a man in a sulky, and got a ligature around one wrist and a towel over the hand, which then did not look so bad. I sent the sulky for Mrs. Shallard; and when she came we went into Woodburn (two miles), and I tried to ring up the Coraki doctor, eleven miles away. Failing in this we got a car and started for the Coraki hospital. On the way "the necessary" got running away from me so fast that I asked my wife if she could tie her handkerchief around the wrist. She managed it all right, although she got her hands covered with blood, and she usually faints if she sees a cut finger. She held up very bravely all through, and I say thank God for a good wife.

We reached the hospital at 1:10, or one and a half hours after the mishap, and I had to wait until 3:20 for another doctor from Lisinore, 20 miles away. They operated then, and I woke up at 1 o'clock next morning minus everything but the palm, but feeling good and happy. They were very kind in the hospital; and as my wife stayed and looked after me we had quite a jolly time. In fourteen days I left the hospital with nearly all the outside wounds healed, which shows I had very little poison in my system. Had I been a whisky-drinker I should probably have come out feet first.

It is five weeks today since the accident, and the hand is getting on nicely, although it will not be ready for work for some time to come. Meanwhile my son Phil is hustling the business wagon along, and I am occupying a box seat, looking out for stumps.

S. Woodburn, N. S. W., Sept. 19.

TURNING FRAMES

BY R. F. HOLTERMANN

Dr. C. C. Miller gives me permission to go through "three motions in place of one in turning a frame over." Probably he is like myself, and has never attended a moving-picture show. Let me ask Dr. Miller how he can turn a frame sidewise with *one* movement? What is *one* movement? Is a circle drawn out of one line? How many straight lines are there in a circle?

However, doctor, I was not addressing you. When people have kept bees as long as you and I have I suspect that combs can be held in any position with safety, especially when the combs are allowed to stay in the hives until the bees themselves chew down the walls and rebuild them. Even in our climate it is not safe to hold new comb



Havoc wrought by the great Louisiana hurricane and flood. Everything in the apiary destroyed and the bees drowned. The owner, J. D. Bailey, of New Orleans, to reach his ranch, went by boat a mile and a half over what would ordinarily have been dry ground.

filled with honey, pollen, and brood sidewise, and, after cheerfully allowing every one to do what he can do—any way, without my permission. I think the safe advice to give is, not to hold combs on their sides "in this locality."

What Dr. Miller writes on the same page about good and bad qualities transmitted in breeding I quite agree with. Where good and bad traits are mixed, the fruit is mixed, uncertain, with probably a tendency to deterioration. Good fruit can be obtained in nature only by weeding out bad tendencies.

Brantford, Canada.

AN APIARY IN THE RECENT GULF HURRICANE

BY J. D. BAILEY

Our loss in the terrible storm that visited this section Sept. 29 has been complete, nothing being left out of a well-established apiary of sixty ten-frame colonies except two found floating. The roof of our honey-house was carried away, and some of the hives were found in the swamp a great way off. Nothing was left standing, as the water rose to a height of five feet within thirty minutes. The wind blew 85 miles an hour, and for the period of one minute attained a speed of 120 miles. The lowest barometric record ever taken by the Weather Bureau since its existence was recorded at 28.11.

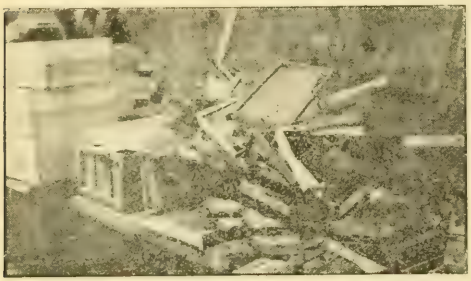
It has been estimated that 350 persons lost their lives, and the damage runs up into the millions of dollars. I had a splendid



Wild bees from nearby trees cleaning up the job. No. 54 contains what is left of a strong colony found floating.

crop of honey in the hives, and was contemplating extracting last week. Two years of hard work has also been swept away; but I feel satisfied when I consider that our old keeper did not lose his life. The only thing that saved his house was the water, that rose to a depth of over two feet on his floor, keeping the wind from getting under the house. I am starting all over again: but the situation does look discouraging. I had a hive at home used for experimental purposes; but that, too, was lost. Not an orange or pecan remains to tell the tale. It will be a long time before the country regains its normal condition.

New Orleans, La.



Rollers cleaning up after the flood.

WHERE THE QUEENS QUAHK

BY A. TSCHOEBERLE

Mr. Doolittle asks the question, page 750, Sept. 15, "Did any of the older heads ever hear a virgin queen pipe or quahk in any other place than the combs of the hives where there were rivals among these queens?" In answer I must say yes.

A year ago last June I had nine queen-cells and no nuclei for them; so I thought I would put them in cages for two or three days till I got time to make some nuclei. I caged and put them into the upper story of a strong hive, and two days later I could hear the young queens piping and quahking. The next day I opened the hive to see how many there were hatched. All nine were out. That evening I went over to listen, and I could hear the queens piping and quahking. One would start piping and you would think all the rest would answer by quahking. The next day I took them out and looked through the lower part of the hive to see if there was any signs of queen-cells, but there were none.

Now as to the piping before the after-swarm, you can always go by that. This last summer I had two hives standing close together, and both of them swarmed the same day. Then I concluded I should let them go until they commenced piping. I went over every evening to listen, but I never could hear one piping or quahking. When I opened the hive there was only one young queen in each.

Marysville, Wash.

A NOVEL PEAR-BLIGHT REMEDY

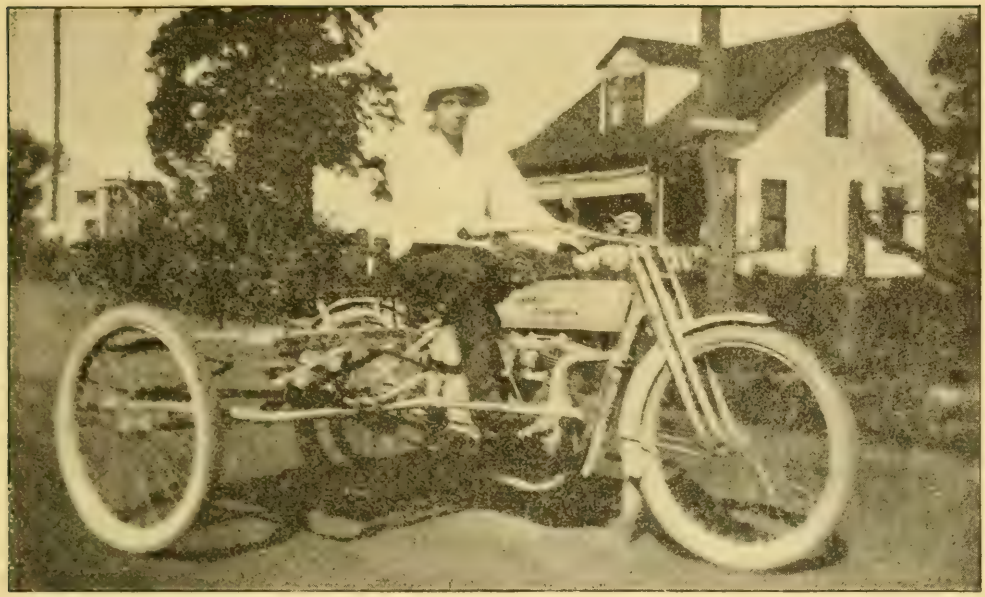
BY J. C. GRAHAM

About two squares from my home there is an orchard of about 200 pear-trees belonging to a friend. In the opposite direction a friend has one pear-tree in his front yard. Two years ago the orchard and the single tree were badly affected with pear-blight. I told each friend of a remedy I had seen tried. The man with the single tree tried my remedy; but the other laughed at me. Last season the orchard was in a worse condition than the year before; but the single tree was in much better condition. This season the single tree is free from blight. The orchard is about a third dead, and the rest is in very bad order.

I suppose you too will be skeptical, but please try the remedy before you laugh. It is nothing more than this: Drive 8 or 10 nails into the body of the tree; and, if not completely cured, as many more the next season. You will find that the nails will disappear and the head will drop off. The sap takes up the iron as it rusts, and the blight simply does not come back. I don't pretend to know why, but have seen it tried again and again, and find it will work.

One other thing: When my bees can fly in the spring, when the orchard referred to above is in bloom my friend has a nice crop of fruit. When it is too cold for the bees to fly when the trees bloom, he has no fruit. I have been living here eight years, and this has always been true.

Mayfield, Ky.



A motor cycle and side car are inexpensive to run.

THE MOTOR CYCLE FOR APIARIAN WORK

BY L. A. P. STONE

I use a motor cycle and side car instead of a light automobile. Recently I had an automobile, but the cost of upkeep more than overbalanced its usefulness. The cost of running the motor cycle and side car is slight, and there is very little trouble. The motorcycle will carry 200 pounds besides the rider. I use it mostly in distributing honey.

There are only three tires to get punctured, and one cylinder to get out of order. Even this never does if overhauled once a year. Moreover, I can run sixty miles on one gallon of gasoline.



The cycle will carry 200 pounds, exclusive of the driver.

I do not believe very many one - cylinder motorcycles will pull as much as mine, as my make of machine is more powerful than the majority.

The side car was built to order, and has a platform 35 by 25 inches. The platform is mounted on light springs so that it is more comfortable to ride on than the saddle of the motorcycle. In fact, I prefer to ride on it instead of the saddle when the side car is not loaded, because I avoid all chances of tipping over when going around turns or along

slanting roads. The side car is very light (weighs about 75 lbs.), and its width is not quite that of the track in the road, which, however, makes little difference on an ordinary road.

My apiaries are scattered, and all away from home, so I save a great deal of time by using a motor cycle, and also a lot of expense by using it instead of an automobile. Of course, if I have heavy hauling to do I hire a team; but this is not very often.

Erie Beach, Ont.

HOW TO OBVIATE ALL TWIST WHEN PUTTING HIVES TOGETHER

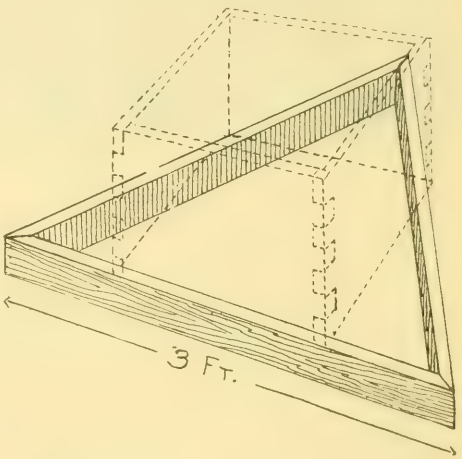
BY C. E. FOWLER

I bought a deep super for a sample; and after nailing it together I found it twisted 1-16 of an inch. Now, if I put it on top of another super that is twisted as badly in the opposite way, and three corners touch, there will be an ⅛-inch opening at the fourth corner. The twisted hive seems to me the great bugbear in home-made hives.

Of course you can use your eye; but I wanted something more accurate, and something that could be used by unskilled persons; so I studied the matter over, and found that if three straight boards form a triangle, every part of this triangle is in the same plane. I made my triangle three feet on a side, of ½ x 3-inch pieces. If you place this triangle on top of a hive, one side of the triangle on one side of the hive, the other two sides of the triangle will touch the two opposite corners of the hive. If all your edges of the triangle and hive are straight, and the triangle touches all four corners at once, your hive is absolutely true. You can use the same triangle on your bottom-boards, covers, frames, or any thing that has four sides to it.

If you are making many hives it would be better to have your triangle heavier (but of the same size—three feet), and resting on the bench, and to put your hives on top. You can use both sides of the triangle, and it makes no difference if the sides of the triangle are wider at one end than the other, provided the edges are straight and meet at the corner. No matter how light it is you cannot strain the joints as would be possible if there were four sides.

If every hive is square and made the same size, half the battle is won.



If you make your own hives you can make them 1-16 or ⅛ inch deeper than you need; and then, after they are thoroughly nailed, make the top true; then gauge each side and true up the bottom. Paint it before it gets wet.

Hammonton, N. J.

NET-WEIGHT REGULATIONS UNJUST TO BEEMEN

BY E. C. BIRD

The net-weight regulations, demanding that the net weight of each section of comb honey be stamped upon the top of each section, is manifestly unfair, onerous, and impossible to comply with. The basic principle is the same as though the farmer were required to stamp each ear of corn with the net weight, or the poultry-raiser to stamp the net weight of each egg placed on the market for interstate shipment; or that bananas be required to show net weight.

When a dealer has an order for eggs or bananas he does not select for a dozen twelve of the smallest and least desirable ones, but with the nine or ten large and most acceptable ones adds a few of the smaller, so that on the whole he gives a proportionate share of the large and small. Now the section of honey, like the ear of corn and the eggs, is the product of nature over the thickness and extent of which the producer has no control. The bees may finish it in any conceivable variation of weight from 10 to 18 ounces.

Again, the demand for honey includes the neatness, delicacy, and attractiveness of the article more than the weight of a certain portion. The market demands that it be cased so that the white and well-finished sections shall be separate from those of darker or less presentable combs. Hence the combination of these two requirements, neatness and weight, makes so many varieties to case separately that it is impossible for the common workman to case honey under this system. It causes the producer to procure expert and expensive assistants or to send his product by a circuitous route in order to have it properly graded at increased expense at some central grading-house.

These considerations should stir the comb-honey producers to combine for a more equable market condition and to overthrow a system of grading which the public does not understand nor demand.

Boulder, Col.

NOTES FROM GERMANY

BY J. A. HEBERLE, B. S.

Honey, "the essence of all that is good," presents a great variation of color, aroma, and taste—mostly a combination of nectars from various flowers and blossoms. In America there are vast areas seeded to alfalfa, and at the time of bloom the bees will visit other flowers to such a small extent that we may properly speak of alfalfa honey. The same holds true for white clover, basswood, orange blossom, etc.

In Germany, with the exception of heather and the juice from a fir-tree, we harvest but small quantities of honey the nectar of which is chiefly from one plant—sainfoin, akazie, buckwheat, etc.

DANDELION HONEY.

Here in the extreme southern part of Germany, but a few miles from the Alps, we harvest a little honey from the dandelion, but all of it has some nectar from the fruit-trees and other flowers mixed with it. The color of dandelion honey is that of gold with a very decided aroma, and tastes rather strong, especially to those used only to mild honey. The taste is fine when mixed with the nectar of other flowers in such a proportion that the taste of the dandelion is not so very prominent that it has lost its pungency.

The honey is very viscous; and, if not extracted immediately, some of the combs will break—even old combs. I have seen it crystallize within 48 hours after extraction, although it had been only partly capped. By the way, this is the only variety of honey here that may be extracted before the combs are capped without losing quality. All the honey from other flowers, if extracted before capping, shows a decided inferiority in taste—something like a raw, unfinished product, and it does not keep well. However, uncapped honey may be extracted if no nectar has been coming in for some time when the surplus water has been evaporated, and the bees have ripened the honey, but for lack of nectar have not capped it.

Dandelion grows here in great profusion, especially in fields that have a few years before been cultivated with the plow. The country appears during the second half of May like a chessboard in gold and green. It begins to bloom here between May 10 and 15, and lasts for two weeks. Some flowers are seen at the end of April, but they are not numerous enough to be of importance. The pollen which it furnishes in great quantities is of orange-yellow color.

The great drawback is, that this early in spring most of the colonies are not at their best, and the weather is very unfavorable. It is cold, and much rain and wind prevail on account of the nearness of the Alps and the elevation of the country.

The country here is a natural pasture. The meadows are not excelled anywhere. The secretion of nectar from a great variety of plants from about the middle of May till the end of June would be good, and the quality of the honey excellent; but the weather does not favor the beekeepers. Usually in this immediate vicinity about July 1, the honey harvest is over. What the bees get afterward they need themselves, and usually a few pounds of sugar has to be fed in the fall to provision them amply till the following spring. Some years (the exception) bees may store surplus in July or the first of August, depending on the weather. Considerable difference may be noted of apiaries only a mile or two apart, depending on the configuration of the country—a protected valley, for instance—"locality." Oranges may do well on a hillside, but freeze on land only a few hundred feet further down.

THE HONEY CROP IN GERMANY.

From reports of different parts we may

say that Germany's honey crop this past season has been above the average. In some parts it is good, and even very good; in some, on account of drouth, it is but fair. However, a good crop in California differs greatly in the number of pounds per colony from what is called a good crop in Germany. Here we have places where an average of 20 lbs. per colony is considered very good. Only rare places may in an extra good season bring as much as 100 lbs. per colony by migrating with the bees.

HONEY BY PARCEL POST.

Much honey is sent here by mail. Eleven pounds from one end of the empire to the other costs but 12 cents; and if the distance does not exceed 60 miles the charge is but 6 cents. I send only crystallized honey through the mail, so no damage has ever occurred by the roughest handling. The cans used differ from the common gallon can with screw cap. They are round, with a well-fitting cover that can be taken off.

Kempten, Bavaria, Germany.

TWO-STORY HIVES FOR WINTERING

BY J. M. DONALDSON.

Wintering over a set of empty combs has been my way of wintering in three widely different localities. In two of the locations I used winter cases, but here in central New Jersey the added protection does not make enough difference in wintering to justify the extra cost and labor.

Ten years' experience in this location has taught me that colonies with young queens and plenty of good stores if wintered in two-story hives will come out good and strong in the spring. Some who winter bees in the cellar or in well-packed winter cases may wonder what advantage there is in using two stories if the lower set of combs are empty. There are several advantages. Mr. Hill names two of them when he says that the lower set of combs acts as a windbreak, and that the bees are not so apt to fly out on bright cold days.

I do not consider a one-story hive deep enough for the bees to store enough honey to carry them safely through the winter and have enough left so that brood-rearing can go right along till honey and pollen are coming in, and at the same time keep up late brood-rearing, so there will be a large force of young bees to winter. With a two-story hive the bees can crowd the queen clear out of the upper story, but she will still have that lower set of combs for a brood-nest. Should the upper set be entirely filled and sealed down to the bottom-bar the lower set makes an ideal clustering-place until some of the honey is consumed and the winter nest formed in the top story. When the queen begins laying, the brood-nest will be in the upper story, and the first examination of the colony can easily be made without unsealing the cover by simply tipping up the top story. When the queen has expanded the brood-nest so that there are five or six frames of brood, the bodies should be shifted, the queen being used in the top story, as her brood-nest will soon occupy the empty combs if a frame of brood is put in when the shift is made.

The editor thinks there would be danger of mice getting in and destroying the lower set of comb. I did not think so; but when I had bottom-bars gnawed almost in two, and whole sets of combs destroyed, besides having the bees disturbed, then I knew for a fact that there was danger. I now use an entrance-contractor with frame-spacing staples driven in the opening.

Would honey left in the lower set of combs in the spring invite robbers to enter? I don't know, because honey is seldom found there, even if there was quite a little when winter set in. I have always had an idea that the set of empty combs discouraged robbing. It's a long way from the entrance to the honey; and if robbers should succeed in entering they have the same road to travel again before they can spread the news.

Moorestown, N. J.

THANKSGIVING

BY GRACE ALLEN

Across the land I hear a noble strain,
A mighty song, triumphant, of thanksgiving,
A proudly grateful hymn sung not in vain
So it but stir a chord of larger living.
And may my voice commingle, as I strive
A low, full-throated, yearning note to sing;
Give thanks, O hosts, for honey in the hive,
But let me lift my song
To celebrate the long
Courageous quest and uncomplaining wing!

Give thanks for harvests, aye, and join me then
In thanks for labor of undaunted men.
Rejoice for vict'ries won for truth and right,
And then rejoice in hearts that fight the fight.
Full thanks we yield for peaceful blessings streaming
Across our lives, with glimpse of dream come true;
But most of all I prize the very dreaming,
And some slight will to do.
Our thanks then, God, for dreams that dare to soar,
And faith that thrills to work. And grant us more!

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Now's the time of year when folks begin to think about buckwheat cakes and home-made sausage. Pass the honey, please.

Some York State Notes

Clover was scarce in the spring, but now I wish you could see it. The fields and woods are a bed of it—white, alsike, and crimson. Next year should be one of the greatest honey years we have ever had if the clover does not winter-kill. I still have the supers on the hives, and they are crowded with bees. The queen is laying to her full capacity.

I have thirty colonies, of which only four cast a swarm this year. To prevent swarming I divide by the Alexander plan. I place the queen in the lower part of the hive and set the old hive on top; and when the brood is all hatched I shake them in the hive with the queen. I find it almost wholly prevents swarming. This plan makes extra-strong colonies. I requeened all of my colonies in July and August, which accounts for my hives being full of brood and eggs at this time.

The crop of honey here has been only about half the average. This was owing to the late cold spring lasting until the middle of June. From that time until the present there have been very heavy rains. The bees were able to work about half time.

Rhinecliff, N. Y. PETER WHEELER.

Introducing by the Smoke Method after Queen-cells are Built and Destroyed

I have learned some things about the smoke method of queen introduction that may be of interest to others. The first season I used it with good results, the second very poor; the third a little better; and this year I have learned why the difference. Queens can be successfully introduced by the smoke method during a good honey flow, in a few hours after the old queen has been removed; but when no honey is coming in, the loss will be heavy; and as I do nearly all of my requeening after the main flow is over. I wait about eight or nine days after the old queen is removed. Then I tear down all queen-cells and run in my young queens with smoke, and get 100 per cent accepted. This is a little trouble, but not so much as giving two or more queens to one hive.

I have yet to lose my first queen given to a hive with laying workers when she is introduced by the Miller smoke method. I use three puffs of smoke to a single-story hive; six to a big two-story ten-frame hive, and nine if the hive is a three-story ten-frame.

I use planer-shavings in the smoker for this purpose, and find that they give better satisfaction than anything else I can get.

FINDING 35 QUEENS AN HOUR.

I should like to know how many queens a good operator can hunt up and clip in an hour in ordinary-sized hives. I have heard of one man who claimed to catch 35 in one hour. This is much better than I can do.

Montgomery, Ala. J. M. CUTTS.

[Thirty-five queens an hour is "going some," even if the queens were in nuclei. We wish the one who has worked at that rate would tell us how he does it.—ED.]

Parcel-post Shipments Successful

We have made a successful attempt to ship extracted honey by parcel post. We sent a number of pails, and every one arrived all right. We shipped in friction-top five and ten pound pails, with the cover pressed down and solder run all the way round to hold it solid. The pail was then enclosed in a stout wooden case, so that, when nailed shut, it fit snugly.

We are going to try the small screw-top square can. If it will do as well (and we believe it will) it will save much tedious soldering.

The price realized for honey shipped in this way will be much more satisfactory than what we get from the wholesale buyer, and at the same time the housewife in the city gets it cheaper than she could at the grocery.

We shipped to Birmingham, which is in the second zone from us.

Folkland, Ala., Oct. 12. SCHUG & DEWITT.

Wintering Bees Covered with Hay in a Barn

My barn has a light loft, and no battens on the siding around the loft, so it never gets damp or steamy. I put down about an eight or ten inch layer of hay, lay two boards on it, and set the hives on these boards close up to each other, having first put on supers and packed them with burlap and excelsior. Then I put queen-traps or pieces of queen-excluder over mouths of hives in a way to let in plenty of air and keep mice from getting in. I next set sticks, about eighteen inches long, slanting against the front of the hive, and cover with a layer of hay thick enough to keep out the light and drafts of wind, but not so thick but that air can go through.

Then I stack hay on the other side and each end and top of the row. It keeps out the noise, and keeps the temperature even. I live near the southern line of Minnesota, and put my bees in last fall about the last of October, in a part of the barn where the sun would not hit them. The last of March I took them up one fine morning and set

them in a new place where the sun comes in the hay-door in the morning and forenoon. I banked each end and back of the row of hives with hay and took off the queen-traps, and they had a good fly and clean-up, and were happy as a dusty traveler after a bath. Every day when it is warm enough I open the door and let in the sun; and when it is cold or windy I leave it shut. If they want to fly they go through the cracks.

Their hives were perfectly clean, and had very few dead bees in them. Our coldest weather last winter was 29 below zero one night, and 24° below two other nights. I am well satisfied with the way they wintered.

Sherburn, Minn. D. M. REYNOLDS.

Remove the Snow from the Front of the Case during a Thaw

From my observations and a limited experience I am inclined to believe that, when there is an anticipated thaw, it is better to remove snow from the covers and ground near the hive or winter case. Any considerable bulk of snow allowed to melt undisturbed produces an excess of moisture about the hive. The slow melting by day and freezing by night tends to produce hard ice, which is very objectionable about the entrance and adjacent parts.

The direct rays of the sun upon the hive will, many times, bring the bees out while there is yet a depth of snow enveloping almost every available alighting-place, and the bees, not being fully adapted to outside conditions, fly about in a way not unlike Noah's dove, seeking some place whereon to rest her feet. Finding none, they drop, more or less exhausted, on the snow, soon chill, and never return to the hive. Had the snow been removed, the little that will remain is quickly melted and often out of the way before sufficient warmth reaches the bees to bring them out. Thus with a comfortable place on which to rest, the bees will be invigorated rather than chilled, and many more be able to make a safe return.

Barnesville, O. THOMAS DEWEES.

Black Bees on Red Clover

We still have lots of alsike and white clover in bloom, and the bees are working on them when the weather will permit. Some one has said that bees work on red clover only in a dry season. I thought that might be the case, as my bees worked on it last season when we had a drouth, and this season has been very wet. Just once did I find the bees very thick on the red clover. Mine are not long-tongued red-clover bees, but just common blacks. How about this?

Decatur, Ind., Sept. 24. W. W. HAWKINS.

Sealed Covers for Wintering

It does not always pay to experiment. When you have a sure thing it is well to stick to it. I found this out last winter. Having heard and read a great deal about giving ventilation to bees in winter quarters I resolved to give the thing a trial. I left on the hives the boards used with the bee-escapes. The latter were removed and a strip of screening tacked over the opening. On this I laid crosswise four sticks of wood and covered them with burlap. Then I put a heavy layer of straw over and around the hives, completing the job by placing a water-tight cover on top of the regular wintering box which I have been using for years.

Well, these bees wintered very poorly. Two colonies were dead outright, two others were queenless, and I did not take notice of it till May. Then they tore to pieces four good queens, which I introduced in the regulation way. By the time they had laying queens the season was well advanced. The remaining colonies were of medium strength. But my whole apiary was queered by this experiment. It would have been a poor season anyway. This made it doubly so. Before this, with sealed covers, I had always wintered all of my colonies. They always came through in fine order, and gathered good crops, so I shall go back to the good old way.

One man's experence may not count for much; but the sealed cover has some doughty advocates—e. g., the editor of GLEANINGS. Even if this were not the case, I should say I care not what course others may take; but as for me—give me the sealed over every time.

Detroit, Mich. L. LIST.

Sees Laying Workers Lay

I have caught two laying workers in the very act of laying. The first time was about ten years ago. I had a case that baffled me. I finally went through the hive and selected the frame which had the most recently laid eggs. I held it in my hands for some time, and after a little I noticed a bee back into a cell.

I nabbed her, and there were the freshly laid eggs. I opened her and she had eggs in her body. I had tried to raise a queen in the hive by putting brood and eggs in the hive, but failed. After this I had no trouble in requeening the colony.

Just last year I had another case of the same kind. I tried finding the laying worker in the same way, but could not do so. At last I took the comb with the freshest-laid eggs and watched it for some time. Then I saw the bees clustering about one bee with their heads all pointed toward her. She was an old-looking bee, somewhat longer in the abdomen than the others. I killed her, with the same results as in the case above. I soon had a young queen in the hive.

In the fifty years of my beekeeping experience I have not always had such good fortune. I would suggest that the best way to oust the laying worker would be to open the hive, take out the frame with the freshest eggs, and put them in a separate hive. Nine times out of ten you will get rid of the laying worker. You can then raise or introduce a queen.

Leeton, Mo. JOHN M. MOHLER.

Getting Ready for Winter in Arizona

I wintered fifteen colonies over a super of extracting-combs last winter. After the bees were done gathering honey in November I took off the supers and removed the brood-chambers from the bottom-boards. Then I set the supers that were almost empty on the bottom and set the brood-nest on top, so the bees could keep warmer during cold weather. Then I fixed the entrances with the entrance-blocks. The bees wintered finely. The mice never got inside of the hives. The moths damaged but one comb, which was in the side of the brood-chamber.

This fall I had twenty colonies—some three, some three and one-half, and some four stories high. Most of the combs are full of honey, pollen, and brood.

Roosevelt, Ariz., Oct. 6. JOHN B. BUREAU.

The Amours of Apis Mellifica

A dog will look up in his master's face,
And knowingly wag his tail,
The man, answering back with a friendly smile—
At least it will seldom fail.

The way a *bee* has of making love
Is one of the strangest things;
It sits right down, gives its tail a tilt,
And gracefully wiggles its wings.

Grafton, O. MRS. S. J. H. S.

A. I. Root **OUR HOMES** Editor

Enter not into the path of the wicked, and go not in the way of evil men. Avoid it, pass not by it, turn from it, and pass away. For they sleep not, except they have done mischief; and their sleep is taken away unless they cause some to fall. But the path of the just is as the shining light, that shineth more and more unto the perfect day.—PROV. 4:14, 15, 16, 18.

I have always been busy. My mother said when I was but an infant I always found something to interest me and to be busy with. Almost sixty years ago, after I had become engaged to Mrs. Root I decided to start in business. I have told you there were two other jewelers in our little town of Medina, and the two at the time were almost "one too many." There was some merriment about my starting a *third* watch-repairing establishment. I borrowed a ladder, hung up my sign on a suitable post in front of the window of a vacant store; and before I got down from the ladder I had a job of cleaning a watch; and I do not believe I have ever been out of a job since that time. In fact, I tried so hard to keep up with my work I was soon obliged to work evenings as well as all day; and when I had been in the business barely ten years my health began to fail, in consequence of working so many hours indoors. A doctor in a nearby drugstore, with whom I was well acquainted, suggested that a glass of beer, say every day, or when I was worn out, might be a help. Now, this doctor was a good Christian man, and he was honest and sincere in thinking the *beer* would be a benefit. How many doctors are there at the present day who would give the same advice? If you know any such, try to persuade them that they are a relic of a former age.

Well, between my place of business and my home there was a saloon. They did not call it a saloon then—it was a grocery; but the grocer kept beer among other commodities. I finally got in the habit of having a glass of beer when I was tired and worn out, and needed rest and sleep. As the doctor said, it *did* seem to brace me up a little, for the time being. There was quite a stir in regard to temperance matters, however, even as long as fifty years ago; but as I always took my drink usually after nine or ten o'clock, nobody knew much about it.

Well, I remember one evening, when I came into the grocery, a man who just taken a drink looked at me in surprise and said, "Why, I didn't know that Mr. Root ever drank beer." I knew this was a sort of clip at me, and I felt a little guilty; but the reply of the grocer was a still more *severe* clip. It was this:

"Oh! Mr. Root is one of my regular customers."

I went out and went home; but I kept hearing ringing in my ears, "Regular customer! regular customer!" My wife probably knew of my glass of beer; but as she was of English parentage she probably did not feel much worried, for people did not look at such things then as they do now. The claim that I was a "regular customer" was, of course, an exaggeration, and I hardly need say to the friends that the saloonkeepers have been for the *whole fifty years* that have elapsed since the incident mentioned, guilty of *exaggeration*. This matter of exaggeration reminds me that at one time, years ago, a statement came out in the papers that Mark Twain was *dead*. Finally one of the reporters of a daily paper called his attention to it; and with pencil and notebook in hand he said, "Mr. Twain, what have you to say to this? What shall we tell the people about it?"

I think Mark looked at his interlocutor a little while, and with a little smile on his face replied, "Just say for me that the statement is *greatly exaggerated*."

Before I take up the subject of exaggeration, however, I wish to say a word or two about the doctors of the present day who advise beer for men and women who are run down because they stay indoors so much, or eat three meals a day when two would be a great plenty, etc. The whole wide world now is ringing, as I have told you repeatedly, with the slogan of "efficiency;" and this whole wide world is also not only declaring but *insisting* that alcohol in *any form* and in *any quantity* is a foe to efficiency. Insurance companies, railroad companies, manufactories, and everybody else demand men and women, boys and girls, who do not drink *at all*. Any drink that contains alcohol in any quantity whatever is tabooed; and whisky and brandy are ruled out as medicines; and the time is soon coming when doctors are going to cure people without booze, without stimulants or dope, and without stuff that comes in bottles. Twenty years ago Dr. Dewey published a book that made quite a sensation at the time, declaring that drugs and medicines are not needed, even in cases of typhoid fever; and he gave a long list of typhoid patients who were cured quicker and were left in better shape where they had no medicine whatever. We may thank

God that a periodical of such authority and such wide circulation as the *Ladies' Home Journal* is giving us some "hot shot" along this line. Here is a clipping from their October issue:

THE PASSING OF THE MEDICINE BOTTLE.

We are certainly making long strides forward when we read such words a sthese, and they concern us all because tney concern our health. And it must be well borne in mind that the writer, Sir William Osler, M.D., is unquestionably the foremost living American physician, and tne highest authority on drugs in the medical world. He says what follows, in the Encyclopædia Americana:

"The new school does not feel itself under obligation to give any medicine whatever, while a generation ago not only could few physicians have held their practice unless they did, but few would have thought it safe or scientific.

"Of course there are still many cases where the patient or the patient's friends must be humored by administering medicine, or alleged medicine, where it is not really needed, and indeed often where the buoyancy of mind, which is the real curative agent, can be created only by making him wait hopefully for the expected action of medicine; and some physicians still cannot unlearn their old training.

"But the change is great. The modern treatment of disease relies very greatly on the so-called natural methods, diet and exercise, bathing and massage; in other words, giving the natural forces the fullest scope by easy and thorough nutrition, increased flow of blood, and removal of obstructions to the excretory systems or to circulation in the tissues.

"One notable example is typhoid fever. At the outset of the nineteenth century it was treated with 'remedies' of the extremest violence—bleeding and blistering, vomiting and purging, antimony and calomel, and other heroic remedies. Now the patient is bathed and nursed and carefully tended, but rarely given medicine.

"This is the result of the remarkable experiments of the Paris and Vienna schools into the action of drugs, which have shaken the stoutest faiths; and partly of the constant and reproachful object lesson of homeopathy. No regular physician would ever admit that the homeopathic 'infinitestimals' could do any good as direct curative agents; and yet it was perfectly certain that homeopaths lost no more of their patients than others. There was but one conclusion to draw, that most drugs had no effect whatever on the diseases for which they were administered."

Now let me go back a minute to give the Woman's Crusade, that started here in Ohio in the early spring of 1874, a little credit. If I remember correctly, Dr. Dio Lewis first made the suggestion that the mothers of our land should meet in a body together and invade the saloons. A lot of Ohio mothers did this. They went into the saloons here in our town of Medina, expostulated with the saloon-keeper, sang hymns, and finally knelt in prayer on the filthy sawdust floor. When I heard what was going on I hesitated about going into a saloon for any more drink. Even though I did not go to church at the time—at least not very much—I had a reverence and respect for those earnest, faithful, God-fearing women, and I broke off then and there, and soon decided that a little more outdoor work in the garden would be a better tonic than booze. I think I used to get Kennet ale at the drugstore occasionally; but the way people stared at me to see me drinking something that looked like beer, even in a drugstore, made me feel I was not doing exactly the right thing. In fact, I one day overheard a small boy telling his mother something like this: "Mr. Root drinks beer. I saw him drink some in Dr. ——'s drugstore." There was no use of explaining that I took it for medicine. Public opinion, even that many years ago, was fast climbing up on the right side. Now a word about exaggeration:

The Cleveland *Plain Dealer*, from which I have quoted so much, ha snow a couple of I have quoted so much, has now a couple of the opposite column against it. Well, I have been amused at the pleas on the wet side. It seems to me, to use a slang phrase, the writer is continually giving himself away. As an illustration:

The wet writer said if Ohio votes dry, 140 places of business now occupied by saloon-keepers would be vacant. He said there were already enough rooms in the city labeled "For Rent," and if 140 more were added, rents would go down all over the city, for two reasons—first, because there would be an oversupply of vacant rooms; second, because no one could afford to pay the *price* for rent that a saloon-keeper can. I presume the latter may be true; but is it not a rather *sad* truth? And then he goes on to tell the enormous amount of money that would be lost if the saloons were closed. Now, this writer was either purposely or ignorantly "lame" in ever so many directions, for towns and cities that have gone dry all over the United States are giving notice that the empty rooms are soon taken for better business and at better prices. And is it positively certain that it would be a calamity to have rents go down? The liquor people are continually declaring that the money that saloon-keepers do not get is *lost*. If rents go down, the owners of buildings, who are mostly wealthy men, lose a little. Now, wherever there is some loss there is generally a corresponding gain. The renters are usually poorer people, and to have their rents *reduced* would be a gain to those who most need it. Let me illustrate:

Every fall, when I go down to Florida, eggs are away up. A year ago, for a few days I got 60 cents a dozen; then after awhile, when the hens got over moulting, the price began to go down. One day last April, when I brought my eggs to the grocer he said, "Mr. Root, I hate to tell you, especially as you are such a good and reg-

ular customer, that we are overstocked with eggs. I do not see how we can allow you over *15 cents a dozen.*" But I laughingly replied, "Why, Mr. Burnett, you need not feel worried at all. I just enjoy the fun of selling eggs at 15 cents a dozen. You see, what is my loss is somebody else's gain; and poor people who have been finding it hard to meet the high cost of living now have a great plenty of the best and most healthful food in the world so cheap that the whole family can *live* on eggs if they wish to."

The whole plea about vacant stores, people out of employment, etc., is just what Mark Twain said about the report of his death—it is "greatly exaggerated."

On page 912 of GLEANINGS for October 1 I gave you a number of illustrations showing how the claims of the liquor party were "greatly exaggerated." Suppose, dear friends, I had kept on getting a glass of beer every night after dark, when I was tired out after a day's work. Suppose I had followed it up for fifty years. This is a ridiculous supposition, however, for I probably should have been dead and gone (like the *doctors*) years ago. While I write these words on election day, Nov. 2, I feel so spry and so well I have been thinking I should like to take a foot race with some of my grandchildren—with Ralph, for instance, one of the Boy Scouts. He is about a dozen years old, and I rather think I could beat him now on a short run.

Now notice where the first one of my texts comes in, and the last one—"But the path of the just is as the shining light, that shineth more and more unto the perfect day." This illustrates why I thank God for having permitted me to live and be in touch with, and have a place with the best men and women of the present day. I am thanking God that he has enabled me to have a voice in pleading for temperance, righteousness, and purity as I have been doing for months past. And if I should be permitetd to live long enough to see Ohio dry, I shall feel like saying with Zacharias of old, "Lord, now lettest thou thy servant depart in peace, for mine eyes have seen thy salvation."

TEMPERANCE

Today, Oct. 28,* while I dictate these lines before starting for Florida, and before election, nobody knows what the outcome of our voting here in Ohio will be; and of course the following clipping from the *American Issue*, when it comes before you, cannot affect the outcome of our *Ohio* election; but it *can effect* the elections that are to be held in the other states over the country. The clipping is headed, as you will notice, "A Startling Comparison." And indeed it *is* startling. As I read it over I pondered and wondered how it is possible, with these sights staring us in the face, we have put up with it, all these years since Lincoln's death. Read it, dear reader, over and *over* again. Read it to your wife and children, and explain its influence. Make them understand that permitting the traffic to go on as it has been going on is worse than *war, smallpox, bubonic plague,* or any thing else in the whole wide world. May God help us. Here is the clipping:

A STARTLING COMPARISON.

The June, 1914, bulletin of the Ohio Board of Charities and Corrections gives a statistical report which shows a full year's experience of all Ohio counties with and without saloons. For that full year there were 45 dry and 43 wet counties. Separate the counties into two groups, the wet and dry, and tabulate the cases of crime, incorrigibility, and jail experience, and take into account that the wet counties have *three times* the population of the dry counties. This is the result:

The 45 dry counties sent to the Boys' Industrial School during the year.....	76
The 43 wet counties, entitled by population to send 228, actually sent.....	260
The 45 dry counties sent to the Girls' Industrial Home at Delaware.....	31
The 43 wet counties, entitled by population to send 93, actually sent.....	89
(With large unreported number from Cleveland to add to wet side.)	
The 45 dry counties sent to the Ohio Penitentiary	106
The 43 wet counties, entitled by population to send 318, actually sent.....	609
The 45 dry counties sent to the Mansfield Reformatory	83
The 43 wet counties, entitled by population to send 249, actually sent.....	582
The 45 dry counties sentenced to workhouses	118
The 43 wet counties, entitled by population to send 354, actually sent.....	967

* The outcome of the Ohio election, as probably every reader of GLEANINGS knows by this time, was a victory for the wets. The prohibition amendment lost by a majority of a little over 57,000. With all the votes counted, the drys found they had been defeated by a majority of 30,000 votes *less* than the majority which defeated the similar amendment last year. Fortunately for the cause of prohibition, the wets' proposed amendment entitled "Constitutional Stability" was overwhelmingly defeated. This provision, if it had been passed, would have made it impossible for the drys to bring a vote upon statewide prohibition within six years. It is not probable that this notorious measure will be heard of again. The majority which defeated prohibition this year came, as last, from Cincinnati.

The 45 dry counties sentenced to jail imprisonment 497
The 43 wet counties, entitled by population to send 1491, actually sent..... 2646
(With Cleveland not reported to add to wet side.)
The 45 dry counties expended for maintenance of jail prisoners $21,316.06
The 43 wet counties, entitled by population to $63,948.18, actually spent...$139,750.07
(With Lucas and Clarke, cities of Toledo and Sprinfigeld, not reported, and yet to add to wet side.)
Cost of jail prisoners in 45 dry counties one year $21,316.06
Same *in Hamilton County alone,* with only one-third the people..... $21,037.90

This shows that the presence of the saloon doubles and trebles the disorder and crime with its consequent expense to the taxpayer. It is to be noted that the cost of criminal prosecutions is much greater in wet counties.

Nothing is wanting to show the benefits enjoyed by the dry counties; but when you consider that Ohio dry counties have the disadvantage of wet neighbors, and that the wet counties have more than half their terrritory dry, the above contrast is not only startling, but it amounts to *absolute* demonstration.

OUR FARM PAPERS AND OUR CLASS JOURNALS; THE STAND THEY ARE TAKING AGAINST BOOZE.

For the past six months it has been my privilege to glance over hastily toward a hundred periodicals that come to our office in exchange for GLEANINGS; and it rejoices my heart to see that almost every periodical—in fact, I might say *every* one (except some of our great city dailies and a few others) comes out with bold editorials for prohibition. Let me give you a sample. This comes from the *Fruitman and Gardener,* Mt. Vernon, Iowa. See what the editor says:

CLOSING THE SALOONS.

It is interesting to note the gradual closing in on the saloon by the anti-saloon forces. A little here, a little there, once in a while a step backward, but almost always a step in advance. It is literally trench fighting—hand to hand conflict.

It is also interesting to note who is the most able assistant of the temperance forces. Their most able assistant is the saloon-keeper himself.

This is noticeable everywhere the fight is on—nowhere more than in Chicago just now. In that city Mayor Thompson issued an order that the state law should be enforced. This meant Sunday closing of saloons. With what result? Mass meetings were held, and the keepers of the saloons decided to disobey the law. They seemingly thought that in their numbers there would be sufficient influence to overawe the law.

The saloon-keeper seems to be a natural-born hog. He never seems to know when he is well off. He is always grasping for everything in sight. This is his undoing. It was his undoing here in Iowa, where his partisans attempted to block all legislation on the subject, although they were in a small minority. It has been his undoing everywhere. Here in Iowa the opponents of the saloon turned and closed all saloons in the state—something they would not have done for a number of years had they not been goaded into it. And the opponents of the saloon in Chicago will eventually get a tighter hitch on the saloon because of the action of the saloon-keepers.

The italics in the above are my own. It is a little tough on the saloon-keeper, I know; but the point is that just now no man will go into the saloon business and pay for a license unless he *is* one of the lowest and most depraved specimens of humanity—one who is willing to brave the scorn of his fellow-men, including the women and children, just because he thinks here is an opportunity to "get rich quick."

The above clipping suggests that the saloon-keeper himself is going to be "the most able assistant of the temperance forces." The following, also from the *American Issue,* illustrates this point. To understand it you want to consider that after that dry Sunday in Chicago the saloon-keepers (7152) came out with a big wail, saying they had lost *$400,000.* When I read it to Mrs. Root, she said, "Why, my dear husband, you are certainly making a mistake. You mean $40,000." But I took another good look and found it was the same in all the papers.

Saloon-keepers in Chicago positively declare they lost $400,000; and a *thousand or two have* declared they would go out of business if they could not have *their best day in the week* for trade. The poor fellows in this wail evidently expected to get sympathy; but that is where they put their foot in it. A lot of people in Chicago were like Mrs. Root—they could not believe it possible that toward half a million dollars went for booze every Sunday in Chicago, and perhaps it is not true—we hope so. They tried to make out, as usual, that this sum of $400,000 was *lost*—that is, *they* lost it, and may God be praised that they did *"lose"* it. Yes, stupidly as usual, they forgot that what was *their* loss was a gain for *somebody else.* Now read the clipping I have been talking about:

DRY SUNDAY HELPS BUSINESS.

One incident in connection with Chicago's new experience of worrying along over Sunday without taking its nip, or a multiplication of nips, ought to be of particular interest to the merchant. We refer to the report from that marvelous department store, Marshall Field & Co. The management is reported to have said that they did the biggest Monday business in their history, following the second dry Sunday.

The saloonkeepers (7152) themselves say that they lost $400,000 as a result of the dry Sunday. This wail, read in the light of Marshall Field's report, gives a hint as to how to divert into legitimate channels money that is now being worse than wasted.

Close the saloons.

Please notice that quite a part—perhaps a large part of that $400,000—went to other great establishments for household sup-

plies as well as to the drygoods store of Marshall Field & Co. Thousands of families, perhaps greatly in need in a great city like Chicago, have *now* the necessaries of life because of that closing on Sunday. Dear reader, can you not see and rejoice with me that God's kingdom is coming?

Just after I dictated the words above, there was handed me the following, clipped from the Akron *Beacon-Journal:*

PRICE OF DRINK VARIES FROM DIME UP TO DAMNATION; FORMER COUNSEL FOR WETS SCORES LIQUOR AT DRY MEETING.

Trenchant utterances against the liquor traffic were unloosed by Dan Morgan Smith, former general counsel for the National Model License League, but now aligned with the Anti-saloon League.

"The price of a drink ranges from a dime to damnation," said Smith. "The purchaser pays the dime when he gets the drink, and the damnation when the drink gets him."

"The price of drink ranges from ten cents to unpaid rent bills, unpaid grocery bills, unpaid doctor bills, foreclosed mortgages, protested notes, lost positions, hungry children, broken-hearted wives, and corrupt government.

WHY SALOON STAYS.

"The saloon has been tolerated in this country, not because it was a working man's club, not because of the taxes it pays, not because the public demands it be licensed, not because it fills a great need, but because some church members pray for their state to go dry while they vote for legislators whom they know will keep it wet."

Smith scored the moderate-drinking argument. "The moderate drinker of today is the drunkard of tomorrow," he declared.

Does not the above represent the opinions of all the advocates of the wet side?

We clip the following from the October issue of the *Independent:*

From 1860 to 1907 there was a very rapid increase in the consumption of alcoholic liquors, beginning with six and a half gallons per capita and reaching nearly twenty-three gallons per capita. Then for several years there was little change, and, indeed, a slight lessening of the per-capita rate. This, of course, was due to the increase of prohibition territory. Now, for the first time there has been a great downward swing, and a falling off in consumption of 15,000,000 gallons of distilled spirit and 6,358,744 barrels of beer in one year.

When somebody tells you that the consumption of liquors is now on the increase, just point him to the above.

DOES PROHIBITION KILL BUSINESS?

James R. Hanna, mayor of Des Moines, Iowa, furnishes an article as follows:

"I have to report that our first eight months' experience has in every way been immensely beneficial. The fear of many that business depression would follow the closing of saloons has not been realized. Practically all desirable places were almost immediately occupied by other lines of business. The money which went into the channels of the liquor trade has gone into the channels of legitimate business. Our expenditures last year for liquor were estimated at about $2,000,000, and careful tabulation of shipments so far this year are estimated at about one-tenth of that amount. This $1,800,000 difference is going to pay for groceries, fuel, clothing, lumber for home-building, payments on town lots, and a thousand other things making for the welfare of those who bore the burden of expense in this business.

"It is nonsense to argue that a city of 100,000 can throw away $2,000,000 each year for something that in no way conduces to the actual needs or comforts of life without paying the penalty. Our police records, court records, inebriate records, pauper records, and charity records all show this clearly, thus early. The superintendent of our public schools reports a decided improvement in the dress, attendance, and the efficiency of the large class of pupils from families affected by the liquor business. —*Ashland Times-Gazette.*

JOHN L. SULLIVAN, THE CHAMPION PRIZE-FIGHTER—SEE PAGE 779, SEPT. 15.

In the *Outlook* for Oct. 27 we see a full-page illustration of John L. Sullivan "clothed and in his right mind." Underneath the picture we read as follows:

The one-time champion pugilist has just signed a five-year contract to speak against John Barleycorn and all of his works, in every part of the United States. From being an advocate and frequenter of the saloon Sullivan has become one of its most influential opponents.

The magazine also contains quite an editorial in regard to the emancipation and *transformation* of our good friend John L. Sullivan. Sometimes we hear it said that the day of miracles is past; but is there a greater miracle than a man like Sullivan, who stood the greater part of his life almost at the head of the bad element of this world, now transformed into an evangelist for righteousness? Take a look at his picture in the *Outlook* and thank God that, by the power of the gospel of Christ Jesus, even the *leopard* "may change his spots."

A KIND LETTER FROM A LADY BEEKEEPER AWAY OFF IN NEW ZEALAND.

Dear Mr Root:—I am a young lady beekeeper, and read GLEANINGS regularly. I have about 80 colonies at present, and use a Ford car to get to and from the apiary, which is over 40 miles from home. I have used a four-frame hand extractor previously, but am getting a power one this season. I can do all the work of the apiary except heavy lifting, for which I get an assistant at the busy time.

Our young men are going in large numbers to the war ,and being killed. Lists of killed and injured appear in every paper. One wonders what will be the end of it all.

We are holding a beekeepers' conference in Wellington, in the North Island, in June. We beekeepers away in this corner of the earth send you our kindest regards, and trust you will be spared many years to continue your good work in the Home papers. MABEL SHEPHERD.

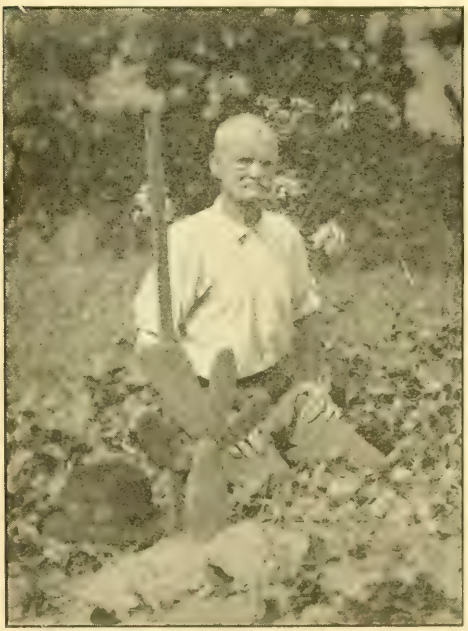
Christchurch, New Zealand, May 24.

[We are very glad to get a letter from a lady beekeeper, especially from one so far away; but it saddens me again to think that away off in New Zealand the war is taking its toll of death and destruction, and accomplishing nothing after all. May God help us.—A. I. R.]

HIGH-PRESSURE GARDENING

SPINELESS CACTUS IN FLORIDA; OUR SPINELESS CACTUS IN OHIO.

By comparing the picture below with the one on page 825, Oct. 1, it seems quite evident that spineless cactus makes a better growth here in Ohio than it does down in Florida, especially in Florida in summer time. I presume so much wetness in summer is bad for cactus in Florida, but I think the wetness here in Ohio during the past summer is pretty nearly equal to that of Florida, especially in the frequency. The Florida cactus was planted last March, while the Ohio cactus was not planted out till July. I told our good neighbor, Mr. Harrison, to place some object near the plant so our readers could judge correctly of its size. I presume I should have done so with our Ohio plant.



SOME OF THE SPINELESS CACTI, AND A GLIMPSE OF OUR FLORIDA GARDEN.

My good neighbor, Mr. Harrison, is a fair illustration of the wonderful results of our climate on old people. I believe Mr. Harrison is about 80 years of age. The picture also illustrates the way sweet potatoes and yams grow when they once get started. In the background, right back of Mr. Harrison, is a specimen of the dwarf poinsetta in full bloom.

SPINELESS CACTUS IN CALIFORNIA—A GOOD REPORT.

Mr. A. I. Root:—I have been reading all you have said about cactus in the last few issues of GLEANINGS, and would say that I have been propagating between one and two acres for several years, and find it the most interesting plant I ever cultivated. Chickens eat it readily, and it is good cooked; and if it is raised on quite dry land it tastes very much like currants. It should be eaten with cream or milk, and honey on it.

I think the reason those rotted (see p. 826, Oct. 1) was because they were cut from the old stock a little too early, which caused them to turn to sugary sap and become yellow in color. In this condition flies will blow or lay eggs in them, and they will be eaten by the fly larvæ.

Cutworms also eat the chits when they first start to grow if grass and weeds are allowed to grow among them. The cutworms should be dug out of the earth the same as where they eat cabbage or tomato plants. Army worms also work on cactus sometimes.

The ground must be kept loose by cultivation, and cactus will do well on the driest mountain land; but if not cultivated they soon fail. They do quite well without irrigation anywhere. As food it seems to be very healthful. I have about twelve varieties of the spineless, and two kinds of that having spines. I paid from two to five dollars per slab, and these have increased to hundreds.

I see no reason why cactus could not be eaten as much as bread or potatoes; and two or three square rods would furnish a large amount of food. The small spines or bristles on the fruit can be quickly brushed off with a whisk-broom. I also eat the fruit with milk and honey, and it tastes like strawberries.

Cactus slabs should not be cut from the old stock until it is about ready to put out shoots for new growth. Then they should be placed in a partially shady and dry place until they begin to start roots. Then plant in the field. They do well laid on the top of the ground without burying in the soil in planting.

Owensmouth, Cal. C. W. DAYTON.

I take it from the above that the cactus slabs when cooked are fit to eat as well as the cactus fruit. If this is true it is quite an important fact in favor of growing cactus.

CACTUS AT $15.00 A TON INSTEAD OF $2.00 OR $3.00 A LEAF.

Your cactus writings are interesting when you tell of paying over one dollar for a slab down in Florida. We sell it here by the ton. I should like to send you a few carloads at $15.00 a ton. Several of our neighbors here have fed it to cows in place of ensilage, and they gave as much milk. I have one plant eight feet high, and this is its second summer's growth.

Lakeside, Cal., Oct. 18. G. E. PHILBROOK.

Thanks for your report, my good friend. The price of $1.75 per leaf or slab is the highest I have paid. The plant I have in my garden here in Medina was advertised, I think, at $4.00 to $5.00 a leaf; and in about 90 days here in the North it has produced eight new leaves pretty well approaching the size of the parent leaf. Just now, October 23, I am blanketing it to protect it from frost until I pull to pieces the whole plant to take it down to Florida.

SWEET CLOVER IN KANSAS.

I hold in my hand a very important bulletin just sent out from the State Board of Agriculture of Kansas. It contains 38 pages in regard to sweet clover, illustrated with numerous cuts. From it I make two extracts:

The first is in regard to sweet clover for honey, and the second contains the important fact that cattle will eat the straw after thrashing out the seed. I think it has been several times mentioned that after cattle and perhaps other stock acquire an *appetite* for sweet clover they will eat with avidity the dry stalks after the leaves and seed have fallen off.

KANSAS SWEET-CLOVER EXPERIENCE.

Sweet clover is the best plant for bees I ever saw. Two years ago I sold 940 pounds of honey from sixteen stands of bees, besides what we used in the family and gave away. It was as white as white-clover honey, and tasted just as well.

I have tried it for pasture for cows by sowing it on alfalfa ground and disking it in. It prevents bloat, as the bitter taste of it, called coumarin, prevents bloat. I have used it for hog pasture. Hogs are very fond of it.

I use the yellow sweet clover. It does not grow as rank as the white variety, and is earlier. It commenced to bloom the last week in April and bloomed continuously until July 10. It will grow in the shade, and in places where alfalfa will not grow. It is a biennial, and dies out the third year; but if allowed to do so it will reseed itself. It is quite difficult to secure the seed, as it shatters so, and requires a huller to get clean seed. It will bear cutting the same as alfalfa, but must be allowed to seed itself the second year. It does not require the ground to be plowed. Disking and harrowing is all that is necessary.—JOHN W. WILSON in Kansas *Farmer*.

STOCK DEVOURED SHREDDED STEMS.

When the sweet clover is permitted to seed, the stems are very woody and hard. I concluded before I thrashed the stuff for seed, the seed was all I would get out of it, and that I would have to let the dry leafless stems rot. There is where I was surprised pleasantly. I not only made a good profit from the seed, but the live stock ate those shredded stalks ravenously. Of course, the thrashing-machine tore the dry stalks to pieces—shredded them. The cattle seemed to enjoy it as much as ensilage.

As a pasture I know it is hard to beat. It will grow on land where alfalfa and red clover won't do well. But after sweet clover has been there a few years and thoroughly inoculated and built up the soil, red clover and alfalfa will do well.—H. L. DAWSON, Osage City, Kan.

I presume this sweet-clover pamphlet may be had by applying to the Kansas State Board of Agriculture, Topeka, calling for circular 44.

FETERITA IN KANSAS.

This same bullletin contains 28 pages devoted to feterita. The matter is well illustrated with beautiful engravings showing both sweet clover and feterita, and these are very valuable documents. The statement in regard to feterita emphasizes the fact that it will grow during a dry spell and produce a crop when corn and almost everything else was a failure. I am surprised, however, that nothing is said about it as a substitute for wheat in making bread, cakes, etc. Our own feterita here in Medina has been slowly maturing because of the cool weather and almost incesant rains all summer long. As I write, Sept. 30, just a few of the heads have sufficiently matured so that it will be just right to cook as a breakfast food; and I for one consider it a most delicious dish. The seed is very easily separated from the heads, and, in fact, it will drop off if it is not harvested at just about the right time; and I cannot imagine a much shorter cut from producer to consumer. Just lay the heads in the sun for a day or two, thrash out the grain, and boil it as you would boil rice or oatmeal. Put on some honey, and butter and cream; and if you do not like feterita I shall be surprised.

SWEET CLOVER NO LONGER A DESPISED WEED.

It has been toward forty years since I began to declare that sweet clover is *not* a weed, and that *no* clover should ever be classed with noxious weeds. Those of you who have read GLEANINGS for forty years know what a storm of abuse I have been receiving for the stand I have taken, up to the last three or four years. I have just looked back through the old numbers of GLEANINGS, and I find there letters from beekeepers who were feeding sweet clover to cows and other stock, and the stock ate it in preference to anything else, and did better on it. With such testimony as that, coming more or less for *forty years*, every little while somebody was stubborn and contrary, and declared it would be the ruination of farmers, like Canada thistles, if it once got a start. This whole matter was brought to mind just now by the receipt of a pamphlet of about 25 pages, sent out by the I. H. C. Agricultural Extension Department, Harvester Building, Chicago. It is sent to any address for 4 cts., or for 3 cts. each in quantities. I will give you just a glimpse of where sweet clover now stands by quoting one letter from the pamphlet mentioned:

THREE THOUSAND ACRES OF SWEET CLOVER; GARDEN CITY BANKER GIVES SOME REASONS WHY HE BELIEVES IN IT.

About eight years ago I started to feed this sweet clover, the white-blooming (*Melilotus alba*) variety, which is considered the best; and from watching my stock feeding on it I began to believe that they did better on sweet-clover hay than almost any other roughness, so I commenced to spread the fields and got to sowing it until now I have about 3000 acres —this, too, on good alfalfa land when clover seed is high and alfalfa seed is cheap; consequently I must

deem it of some value as compared to alfalfa, and also must have some reasons for sowing sweet clover. Here are my reasons:

Sweet clover has proven to be as good feed for all kinds of stock as alfalfa.

It makes a better early pasture, will not bloat stock, and is easier grown.

It grows without much preparation of the ground, will grow on ground too poor for any other crop, and is about the best fertilizer for worn-out soil of any of the clovers.

Last year, from 120 acres of ground I got a little over 900 bushels of seed, which sold for $10 to $15 per bushel.

Last year I sold a carload to one seed-house—the first carload lot known to have been sold by any one grower of sweet clover.

This year I harvested about 600 bushels off 200 acres, and it is selling at $15 per bushel for the hulled, recleaned seed.

I attribute the reason for sweet-clover seed being so high and alfalfa seed so cheap to be because alfalfa will grow in only a few states profitably, while sweet clover will grow in nearly every state in the Union, if not in every one.

It produces the best blossom for bees of any of the clovers.

It is a help to orchards, keeping down weeds, making hay as well as fertilizing the land.

I cut my first crop for hay the latter part of May. The last of August the seed is ripe, then another short hay crop. You can allow the first crop to go for seed, but the stems get pretty thick and full, so that it is harder to handle. It is a biennial legume plant, so that the first year it does not go to seed, but will seed the next year. Enough seed falls off every fall to reseed the ground so that it is a continuous crop similar to alfalfa.

I thrash with a regular grain-separator, either out of the stack or shocks.

I think 10 lbs. of seed per acre is sufficient to sow in this section.

I prefer to sow in the fall and winter. The seed is of a hard nature, and seems to like some freezing weather. A good many have excellent success by sowing in February, March, April, May, and June.

I think a good deal depends on the season; in fact, almost all.

Prepare land about as for alfalfa. I have had good success, however, by sowing right on the sod and then harrowing or disking.

The yield is about the same as alfalfa, but it makes a larger tonnage than alfalfa under similar conditions.

It seems to stand all kinds of pasturing, both in the spring and fall.

I know of some fields that are pastured clear up into May, and then make a good crop of seed and a hay crop besides.

I do not think it lasts as long as alfalfa for pasture in the fall.

There is no bad effect on the milk of cows pasturing sweet clover or eating the hay. I refer to the white-blooming variety.

I am absolutely positive about its not bloating any kind of stock, and it will not give horses the heaves as alfalfa sometimes will.

A good crop of seed averages from about 4 to 15 bushels per acre. I have had it yield as much as 15 bushels per acre.

I consider it equal to alfalfa as a feed; that is the reason I am growing it in preference to alfalfa —one of the reasons, at least.

SWEET-CLOVER SEED—GETTING THE HULLS OFF.

Could you tell me how to hull a small quantity of white-sweet-clover seed for experimental purposes? Can it be done without a special machine?

Conneaut, O., Aug. 15. D. B. PHILLIPS.

My good friend, I am sorry to say I know of no way to get off the hulls of sweet-clover seed without a special machine. Just now I am gathering seed from that special plant described in GLEANINGS, and I thought may be it would germinate better if I could get the hulls off; but as the seed was not yet dry, it seemed next to impossible, so I planted it with the hulls on, and I am glad to tell you it was up nicely in five days from the day of planting. I think seed taken direct from the plant before it is dried out will germinate quicker than the usual dry seed with the hulls on.

DRAINAGE, BOTH NORTH AND SOUTH—THE IMPORTANCE OF IT.

With the light sandy soil we have down in Florida, as a rule, one might think that drainage is of less importance than here in Ohio on our clay land; but the fact is, no first-class results are secured in Florida—at least in Manatee Co., without good thorough drainage. My neighbor Rood has put in hundreds of dollars' worth of tiles; and our experiments in tiling have shown such good results that where I have not got in tiles I have raised up the beds of soil perhaps a foot or more above the paths that carry off the water during our great rains. The question has often come up as to whether it will pay to put in tiles, and, furthermore, how deep to put them, how far apart, etc. The clipping below, from the Jacksonville *Times-Union*, answers it more directly than anything I have before come across:

DRAINAGE FIRST.

"My land is low, wet, and sour. What kind of lime should I get to sweeten it, and how much will be necessary?"

Answer.—Before applying any lime, establish good drainage. This means that the standing water in a hole dug the day before will not come nearer than 2½ feet to the surface of the soil, and we would much prefer to have the distance at least three feet. There is no surety in cultivating land with good results, whatever you may do in the way of liming, fertilizing, and tilling, unless you have good drainage. After you have made your water conditions right, apply about three tons per acre of ground limestone, which should be bought in car lots, minimum fifteen tons.

Dig a hole or several holes in your garden some time when it does not rain, and then come around and see if water is standing nearer the surface than 2½ feet. I suppose 2 feet would do pretty well, but no doubt 2½ feet or 3 feet would be better. Keeping watch on how high the water stands in the holes you have dug will aid you in deciding how deep and how far apart to put the tiles. If the work is well and properly done, you will have something that will pay you good interest year in and year out for the rest of your lifetime.

POTATOES AND POTATO-GROWING HERE IN THE NORTH.

About the first thing I did after I got back to Ohio last May was to plant some potatoes. I sent and got half a bushel of Early Ohio and a peck of Six Weeks. The latter are said to be a little earlier than the Early Ohio. I think both were planted about May 15; and as the weather was favorable both made a good growth. Now, our Medina garden has grown potatoes for a dozen years or more, and potatoes have been on the same ground year after year. The consequence is, they usually scab badly. There are grubs and worms also that seem to bite into them. It illustrates the folly of trying to grow the same crop year after year on the same ground. Mrs. Root finally declared that she did not want any more potatoes planted in that old garden. Well, the Six Weeks grew rather better than the Early Ohio, and they ripened up quicker. From the peck, I got about three bushels of nice potatoes of good quality, with very little scab. I have just now planned to ship them down to Florida to try them there. The half-bushel of Early Ohio gave also about a barrel, but was later in ripening, and therefore caught the blight, and were also fearfully scabby, and gnawed up by worms and grubs. Besides that, they were badly rotted, and kept on rotting after they were dug and put into a cold cellar.

It has been said that the Early Ohio has been grown for so many years that it is "worn out;" but because of its excellent quality a good many still hold on to it. Well, now, there is a good deal in getting the right variety of potatoes or a potato suited to your soil. A little later I planted a few Idaho Russets. These were not scabbed at all, but the blight stuck the vines before they were quite mature. I also planted a few Carman No. 3. These gave a nice crop of smooth potatoes with just a little rot; and my son-in-law, whose garden adjoins mine, had a dozen bushels or more of very nice smooth Carmans. But potatoes have not been grown on his ground as long as on mine. By the way, when you discover your potatoes are beginning to rot, especially if the season is wet like the one just past, the sooner you get them out of the ground and get them thoroughly dried out, the better. Of course they should be dried out in a cool dark place, for sunlight injures potatoes for table use, as any good housewife can tell you.

The complaint has been made that the general run of farm papers give only good reports—successes and *not* marked failures—so I think I will give you a report of one of my failures.

About the first of June I saw a potato highly recommended in one of the catalogs. It was called the Commercial. One potato would be sent by mail for 15 cents. I accordingly sent for one; and as it was of good size I cut it so as to get 17 eyes. The weather was favorable, and they made a most astonishing growth. I gave each plant extra care, and each vine grew so it could be raised so as to reach as high as my head; and some of them were almost as large as a hoe-handle. I expected an enormous yield, and was planning to tell the readers of GLEANINGS how I got a *barrel of potatoes* from only one potato planted. Well, after the vines died down (I think they were cut short by blight) I proceeded to dig them. How many potatoes do you suppose I got from my 17 hills? Not enough to fill a quart basket—quite a difference between a quart and a *barrel!* I noticed that the ground was flat and not being heaved up as we generally see it where there are great growths in the potato-vines. I saw a *few* evidences of small potatoes that had rotted, but nothing to mention. In some hills where there was this great growth of vines there was *not a potato at all.* Now, it may be that this Commercial potato is very late and needs a long season to mature; and possibly the blight struck it before it had had a chance to set and grow tubers. It also illustrates the fact that certain varieties are adapted to certain soils or localities. I presume I have tested a hundred or more varieties of potatoes that have been highly recommended; but only a few seemed to be adapted to our Medina clay soil. Of course I might have warded off the blight by proper spraying; but we have so few potatoes here that I did not think it worth while; and I am inclined to think the unusual wetness had much to do with the prevailing blight in this region. In fact, there were times when the vines and foliage did not get sunshine enough to dry them out, for many days in succession. In our Florida home, pretty much all the varieties I have tested gave a fairly good yield.

REDBUGS, SO CALLED; ALSO SOMETHING ABOUT MULCHING POTATOES WITH PINE NEEDLES.

I have a patch of dewberries in my garden which are heavily mulched every spring with manure and straw (pine leaves). Last spring, before putting on the mulch, I took some potatoes about an inch in diameter, and planted them whole, down the middle of the rows, barely covering them. Then the mulch was put on and nothing else whatever done to them until digging time. The result was four bushels of potatoes, fine ones, from about ninety hills. Neither

bugs nor blight troubled them, and the vines remained green at least a month after those planted in the ordinary way and sprayed were dead.

I have just seen your note in GLEANINGS for Feb. 15, about the Florida redbug. Some fifteen or twenty years ago I saw published in some paper a preventive which has since given me untold benefit, and which has been worth many dollars to me, as I am very sensitive to redbug bites. Such bites will give me more trouble than forty beestings. I have been getting them ever since I can remember (when not using a preventive), and haven't become insensible to them yet. Take fresh oil of cloves (that which has turned dark with age is little good), and rub a few drops on the ankles every morning before putting on socks or before going where you are liable to get redbugs. I have gone into blackberry-patches, among old logs, etc., where redbugs are thickest, and not received any at all, or very few, while if I omit the oil of cloves I get dozens of them on me. When picking berries, it is well to put a little around the waist, on arms, etc. This is not quite as efficacious for women as for men, as their skirts catch them, I suppose.

May God bless you, and spare you many years to prove my remedy and to continue your fight for the right.

A saturated solution of kerosene oil and gum camphor is good after the bug gets on, and is picked out with a sharp-pointed knife.

Arcola, N. C., Feb. 25. J. F. HUNTER.

My good friend, I fear from your concluding sentence that what you call redbugs in your locality are different things from the Florida redbugs. There are three insects that worry humanity down in Florida—first, the sticktight flea. This bothers the poultry by getting on their combs and wattles—especially the Leghorns and Spanish, which have large combs. These sticktight fleas are well described by their name, and you can pick them out with a pair of tweezers after they start to burrow in the chickens or on your ankles. The redbug, however, is almost microscopic—in fact, I have never been able to *see* one. They trouble us more or less every season without fail, while the sticktight fleas have not appeared on our premises for the last two winters. They live principally in dry sand, under buildings and such places. When there are abundant rains they are seldom found.

The third insect, I believe, troubles me most of all. It is the well-known common chicken mite. To make sure I was not mistaken I sent a sample to Washington. I do not remember that we ever had any on our premises until I bought a pair of guinea fowls of a party in Pennsylvania. I sent for them with the understanding that they would keep away hawks; but they did nothing of the kind, for they rambled all over our five acres, and might be up in the tops of the highest trees while the hawks were making a swoop for the chickens on the ground. The first season that we got guineas I found a sitting hen literally covered with mites—at least the nest-box was swarming with mites. We burned up the straw that was in the nest and put the box on top of the fire until it was charred inside and out; then soaked it with moth-balls dissolved in kerosene; and this latter remedy is cheaper and more effective, according to my experience, than any of the much-advertised chicken-mite remedies.

Our worst trouble is with sitting hens. If you are not very careful you will find mites crawling on the eggs from the sitting hens. A galvanized-iron nest-box has been recommended; and I am inclined to think it would be a good thing. When I sent a sample of the mites to Washington they said it was quite unusual for the mites to be found on human beings. They do not seem to trouble Mrs. Root; but they get under my arms and under my knees—sometimes in my hair, and not only annoy me by their crawling about, but they sometimes bite excruciatingly. I hope it is true that only on rare occasions will they pester and annoy persons as they do myself.

In regard to mulching potatoes with pine needles I have often wondered whether pine needles were good for anything. I can readily understand that the strong odor from these turpentine pine needles should repel bugs, and they may also possibly repel blight, as you suggest in your letter. I expect to try it soon.

"LOOK OUT FOR PICKPOCKETS."

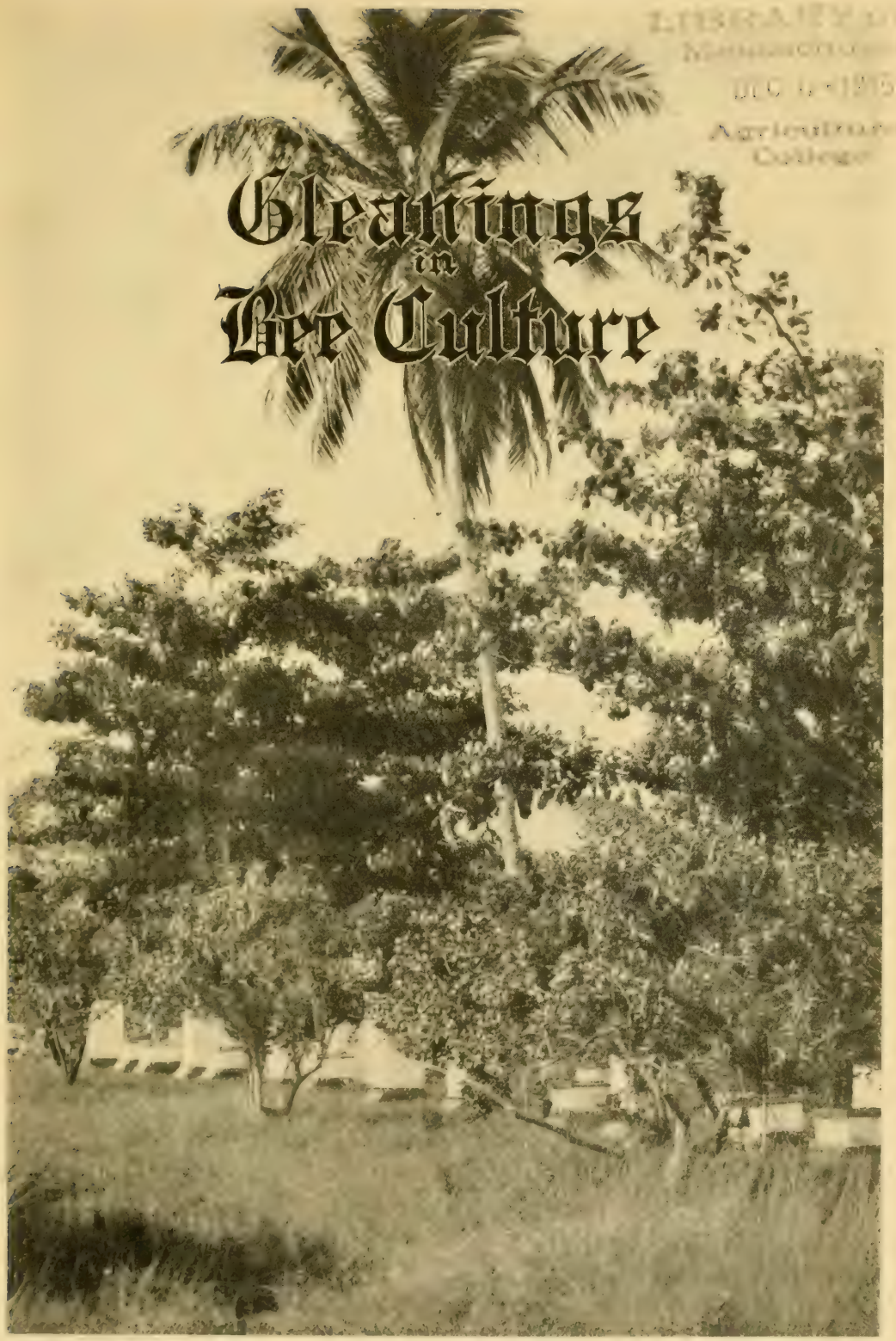
The following, clipped from the *American Poultry Journal,* illustrates a plan that is getting to be too much the fashion of late in the way of picking the pockets of good honest hard-working people:

Charged with using the United States mails to defraud, G. A. Davenport, aged 34, of Brookville, N. J., has been arrested at Apollo, Pa. According to Postoffice Inspector J. D. Wardle, of Trenton, N. J., Davenport operated under the name of the Cedar Ridge Poultry Company at Brookville, and advertised in the daily papers to sell baby chicks at seven cents each. Instead of filling the orders he received with the cash, he disappeared. Later he was located at Apollo, Pa., where he was operating under the name of the Kiski Poultry Farm. His Uncle Samuel will now take care of him.

I have given place to the above, principally to ask our friends if they know of anybody in the bee business who has been doing similar work in, say, advertising queens at a low price. If so, give us the information and we will give him free advertising. And this illustrates what I have mentioned before—be careful about sending money in answer to any advertisement that does not have some name signed to it in black and white instead of some high-sounding title like "Poultry Farm" or "Bee Farm," etc.

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A GLIMPSE OF THE PICTORIAL REVIEW FOR 1916.

Pictorial Review has made a reputation for its worth-while fact articles, and special attention will be paid to this part of the magazine in 1916. Mabel Potter Daggett is at work on a series of articles entitled, "Phases of Feminine Unrest." There will be a series of articles by Anna Steese Richardson, author of "Better Babies and Their Care," on "A Nation-wide Clean-up Campaign."

Among other writers of special merit whose best work will appear in Pictorial Review in coming months are Dr. Orison Swett Marden; Helen Louise Johnson, Chairman of the Home Economics Department of General Federation of Women's Clubs; Dr. Frank Crane, and others.

STORIES.—With Pictorial Review you actually get four great $1.50 novels worth $6.00, which will appear in serial form in Pictorial Review during 1916. These four complete book-length novels from four of the most popular living authors will sell for $1.50 each after they have appeared in Pictorial Review.

FASHION INFORMATION.—Pictorial Review is today recognized as one of the most reliable "fashion authorities" in over one million of the best American Homes. If you wish to see the newest, chic styles every month, you need PICTORIAL REVIEW.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

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EDITORIALS

A report of the Ohio State Beekeepers' convention will appear in our next issue.

The double telescope covers do not blow off in a high wind like the single-board covers. We have had ample evidence of this at several of our outyards of late.

The Cover Picture—A Porto Rican Apiary

Just as all landsmen love the sea, whether they have ever stood upon the shore or not, so every inhabitant of the temperate zone sometimes feels the call of the tropics. The land of palm and pepper has a strong fascination for us all whose homes are halfway up toward the pole.

The waving cocoanut of the cover picture stands sentinel over an apiary of some forty colonies, the property of Haydn Randall, of Garrochalles, P. R. The low trees in the foreground are grapefruit, the remnant of an abandoned grove. Just back of them are almond trees.

Mr. Randall has built up his apiary of twenty colonies brought to the spot about a year before the picture was taken. The section is not an excellent one as bee pasture, since most of the land is devoted to the culture of sugar cane.

Dadant & Sons

In our issue for Oct. 15, page 850, after giving a general writeup of the general field meet at the home of the Dadant & Sons, Hamilton, Ill., we promised later to introduce the members of that firm to our readers. We now have pleasure in doing this. See page 996 this issue.

Mr. L. G. Saugier is a son-in-law, who, together with the sons, makes up the personnel of Dadant & Sons. They all appear to be men who are willing to take off their coats and work whenever necessary. As we have already explained, each has a department of his own, and the Dadant business, presided over by the father, C. P. Dadant, runs just like clockwork.

While they are direct competitors of the A. I. Root Co., they afford the kind of competition that boosts, not their own business alone, but others also. They are most emphatically not the kind of competitors who are jealous of another's success. That they have made a success of their business is shown by the general air of prosperity about the plant and about their homes.

Theirs is the kind of organization that is destined to continue, because it is bound by blood ties—the strongest kind of ties this world knows.

Is there a Disposition to "knock" Extra Yellow Bees?

We have been accused by one of our advertisers of unfairly "knocking" yellow bees; and perhaps he would almost think that our correspondent, Mr. J. L. Byer, in his department, page 971, this issue, and the editor were working in collusion. The fact is, we did not know before his opinion on the subject. We have contended that not *all* yellow bees are inferior; but so many had proven such that we thought we were only doing our readers a real service by entering a word of caution. Some breeders of these bees breed, first, for honey production; second, for wintering qualities; third, for color. When extra-yellow color is secured with the other necessary qualifications, there is no objection, of course, to the bright yellow. Other things being equal, they should have the preference. But in some instances, at least, color seems to have been the only desideratum. Too many yellow bees have been first to die during winter, and too many of them have been cross—very cross; hence we have felt

it to be our duty to say to those who breed extra-yellow bees that these undesirable qualities should be eliminated. This does not mean that some have not done it.

The greatest complaint, however, against some of those who have bred extra-yellow bees was because they advertised five-banded stock, and furnish only the three and four banded. The terms "five banded" and "yellow all over" have been eliminated from our advertising columns, and now the term "golden" or "extra golden" has been substituted. This is better.

Not too much Packing, but too much Snow

In our issue for November 1, page 905, Mr. A. J. Knox has an article on the subject of quadruple winter cases. Referring to this, one of our correspondents, under the non de plume of H. I. Bernation, thinks Mr. Knox must be mistaken. He writes:

> The data in the article by A. J. Knox, November 1, pp. 905, 906, do not seem to be such as to warrant all of his conclusions. He says that the first year he leaned covers over the entrances, and when the bees were found dead outside he blames their death on too much packing. Now he omits these covers and gives less (insufficient) packing and gets better results. He deprecates bottom packing, but commends snow for that purpose. With a 40-mile breeze the scant (twelve bushels to the case) packing would probably be no better than single-walled hives were it not for the providentially provided snow. It would be interesting to learn how Mr. Knox found out that his bees got too warm when completely covered with snow, and why upward ventilation is needed in thoroughly packed hives. The loss of four per cent seems to be smaller than usual. Is this good wintering? Should not Mr. Knox try packing his bees thoroughly and see what happens? His creosote stain sounds good, but it is not clear why he prefers thin lumber unless it is on the ground of expense. H. I. Bernation.

Mr. H. I. B. is correct. Too much packing under and around each hive certainly can do no harm, and it may do a great deal of good. Putting a board in front of the entrance of a colony during winter as he did to shut out the cold wind looks very fine in theory, but it nearly always proves disastrous. The bees apparently become confused, lose track of their entrances, and die outside around the hives in thousands. We tried out that scheme years ago, at one of our outyards, and found it to be a failure. Mr. G. M. Doolittle, at the time, noticing that we were giving this thing a pretty thorough test, warned us of the results, and we got them all right, in that we had the biggest loss at that yard we ever had. Mr. Knox should not, therefore, attribute the loss of bees of one winter to *too much packing*, but rather to too much snow and to the boards in front of the entrances. Screening the wind from the entrances by a slanting board or cover is one of those pretty things in theory that do not work out well in practice. When hives are "completely covered with snow for several months" it is enough to kill any bees. If the entrance is closed with snow or ice the hive, whether packed or not, will develop too much heat, and, of course, the bees will soon die.

"Slightly Exaggerated" again; Pulling Stings in Lots of 10,000 to Cure Rheumatism

We recently gave an address on bees, accompanied with a live-bee demonstration, before a Rotary Club in one of our big cities. These clubs are made up of live business men whose aim is to push business. At every session they call on an outside man to give an address, generally along his own line of work. It was on one of these occasions that we gave a talk on bees that we happened to mention incidentally that there was much ado in the newspapers about the wonderful properties of beestings for the cure of rheumatism; and while we added that stings might be valuable in some kinds of rheumatism, we believed that, in most cases, the results were only negative. We also stated that the homeopathic school of medicine used beestings in making up a medicine known as "Apis Mellifica;" that we had years ago filled two or three orders for ten thousand stings; but distinctly stated that we were not accepting such orders now. We did not offer any opinion as to the value of these stings in curing diseases.

We have learned by experience that it is best to be cautious in the presence of newspaper men, and so we were on the occasion mentioned; but imagine our astonishment on seeing in several papers for a week or so back some statement to the effect that the A. I. Root Co. was pulling stings in lots of 10,000 from bees, and then sending them out broadcast over the country to cure rheumatism! Wow!!! The story has appeared in so many forms, and so awfully exaggerated, we are wondering what our subscribers think we did say. As it was, we have got considerable free advertising. All we can say to one and all is that we have no beestings for sale, either to the homeopathic schools of pharmacy nor to the thousands of sufferers all over who have rheumatism. When beestings do "cure" it is our honest belief it is the outdoor air coupled with enthusiasm and exercise that does the business. A good garden and a good hoe will do the same.

Distance Bees Fly in Quest of Stores

We desire to indorse what our correspondent, F. M. Baldwin, has to say on this subject in this issue, page 987. We have traveled quite extensively over this country; and while we have found occasional locations where bees would fly five miles and sometimes even further, we are satisfied that they seldom go over 1½ miles, and usually not over a mile. A great many times our own bees at our outyards seem to go less than three-quarters of a mile; and yet many years ago we found our Italians, that we were just introducing, more than three miles from home. There were no other Italians in the locality, and so we knew they were our own bees. That they do this generally in this locality is not true.

It has been stated that bees have long-range vision. When the country is somewhat mountainous or hilly they are known to fly from one hill to another, the distance aggregating five miles. Similarly they will go across a body of water; but on ordinary level wooded country they will fly scarcely over three-fourths of a mile. It is our opinion that they seldom go more than three-fourths of a mile. Our bees, at one yard, at least, seem disinclined to fly over a piece of woods half a mile away. They will go up to it and into it, but will not fly over it.

The localities in and about Medina will not support, either for comb or extracted honey, much more than about 35 colonies in a place; but there are places that will support anywhere from 200 to 500 in one location. The late E. W. Alexander's location at Delanson, N. Y., was a case in point. From that apiary site buckwheat fields could be plainly seen three and five miles away. When this is the case the bees have an opportunity to see a long distance. If on an elevation they will fly far across a valley. If on a plain, as in the West, if no shrubbery or wooded country is in the way, they will go sometimes two or three miles, and sometimes even five. We have cases of this in some of the alfalfa country.

The conditions in and about Bradentown, Fla., are not such as to favor long-distance flights. The country in the wild state is covered with pines, swamp lands, and hammock land, and in the cultivated state with citrus groves. There is almost no territory about Bradentown that is free from growth of some kind, and that is the reason why the range of flight is so short.

If our theory is correct, that the flight of bees in quest of nectar is dependent on the distance they can see pasturage, it will help us to determine the distance and location of our outyards, and the size and location of apiaries will make all the difference between success and failure. The question is a good one to discuss during the winter months, in order that we may arrive at some definite conclusion by next spring.

A $30,000 Damage Suit against a Silver-smelting Company for Alleged Damages to the Beekeeping Interests in the Vicinity

For some time back there have been rumors to the effect that a silver-smelting concern in Canada was causing widespread damage to the beekeepers in the locality. Attorneys from both sides have approached us, asking for information concerning other cases of this kind. The only one to which we have been able to refer is the one recorded on page 616 of our May 1st issue for 1907. At that time it appears that the smelter people settled with the beekeepers in the sum of $60,000. The case was long drawn out, and after a long and severe struggle the smelters in the Salt Lake Valley, Utah, settled on the basis above mentioned.

It was stated at the time that prior to the advent of the smelters the Salt Lake Valley was the banner bee country of the state; that there had been kept up to that time as many as ten thousand colonies of bees. At the time the statement was made, it was alleged that less than ten colonies were left. One beekeeper lost a thousand colonies. It appears that each of the smelting companies paid $15,000 each, or $60,000 in all, which amount was probably distributed among the beekeepers claiming damage.

In several trips we have made in various parts of the western country, we heard complaints of the destructive action of the smelter gases on bees and vegetation. It has been said also that the gases not only kill the bees but destroy the plants that furnish the nectar supply.

Within the last few years we have heard nothing about any further complaints except the one originating in Ontario, Canada. How the beekeepers of Salt Lake Valley came out at the time we do not know. We certainly have subscribers in the Valley now, and are under the impression that the smelters are still operating. Whether that settlement of $60,000 was a settlement for all time we do not know.

Some time last year we wrote to Lewis Minor, one of the foremost beekeepers of Ontario, Canada, for particulars concern-

ing the suit against the smelting company. He writes as follows:

A movement was started in preparing this action by the beekeepers in 1912 against the silver-smelter which goes under the name of the Coniagas Reduction Co.; but the writ was not issued until June of this year. We expect it to be brought before the courts in November. Following are the names of the beekeepers bringing this action:

John Newhouse, Mansford Niles, Peter Warner, Henry Ackrigg, Wm. Selby, Mrs. Adelbert Clark, John R. Secord, Robt. T. Miller, Wm. Craft, Edward Willix. There were several others who claim loss, but did not go in with those trying to recover damages. All the bees were lost within 4½ miles of the plant—about 700 colonies—as soon as they began operating six years ago. The beekeepers interested in this suit are claiming $30,000 for loss of their bees, appliances, and honey crops for six years. I understand there are many smelters in the northwestern and eastern states that did considerable damage to the livestock industry, and also killed bees.

I am acting as agent for the beekeepers; and if any one can give any information, please send it to me. This case will, no doubt, establish a precedent for others losing bees in this way.

Smithville, Ont., Sept. 4. LEWIS MINOR.

The attorneys representing the beekeepers are Bradford & Bradford, of Dunnville, Ontario. Any beekeepers in the West or elsewhere who can give any information would do well to consult the attorneys prosecuting the case. We will keep our subscribers advised of any further developments.

The Embryology of the Honey Bee—A Review

BEEKEEPERS know that about three days after the egg is laid by the queen there hatches from it a small, white, worm-like larva. Where this larva comes from, how it was formed, and why it is as it is, are questions that perhaps have never occurred to many beekeepers. It may be asked, "What difference does it make to the practical beekeeper?" This question is hard to answer if a dollar-and-cent reply is expected; but if our interest in the honeybee is limited by the financial boundaries, then beekeeping becomes dull drudgery, and the fun of the thing is gone. A good beekeeper is a broader man than that. His interest is immediately aroused when a new investigation of the bee is announced, and he wants to know about it.

Dr. James Allen Nelson's book, "The Embryology of the Honeybee," is doubtless the most thorough discussion of the development of any insect yet published. It is the only publication in English to which we may go for information as to what happens in the bee's egg. The reader who is unfamiliar with such work will not follow all that is in the book; and even the person who has had some technical training may have a little trouble in places. We must have something to put into a book before we can get everything out, and this is as true of a practical book as it is of a scientific one. However, every intelligent reader of this work will rise from a perusal of the book with a consciousness of a little less mystery about the development within the egg, and that is worth while. The book furthermore continues to give information when studied.

Each system of organs is traced from its earliest discernible stage to the form which it has in the young larva; in fact, the development is carried from the egg immeditely following fertilization to the well-organized larva. To the student who desires information concerning the development of the honeybee as compared with that of other insects, full information is included. A comprehensive bibliography is included. The illustrations, all but two of which were drawn by the author, are remarkably clear in the reproductions.

Dr. Nelson is entitled to our thanks for giving one more important stone to the foundation of beekeeping. It may seem a long way from his contribution to apiary practice; but the foundation of beekeeping can be learned only by scientific investigation, and an extended contribution such as this makes the superstructure all the firmer.

The book is issued from the Princeton University Press. It was too large to be included in the publications of the Department of Agriculture, and beekeepers are indebted to the Princeton Press for providing a permanent record for this investigation. The presswork is excellent. The management realizes that this work will not be one of the season's "best sellers," and their primary object in accepting it was not financial gain. Beekeepers who want everything published on bees, and who are curious about the things of the hive, will want to peruse the book.

James Allen Nelson, The Embryology of the Honeybee. Princeton University Press, 1915, 288 pages and 6 plates. Price $2.00. If more convenient, this work may be ordered from GLEANINGS at the same price.

A Correction

MR. F. R. BUCHANAN, of Glendale, Cal., the man who so kindly carried us in his machine up into the skies (see pages 875 and 943) begs leave to make a correction. We stated that he had about forty colonies. As a matter of fact, he has about 200 more in another yard, which fact we now recall, with apologies to Mr. Buchanan.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



At present there's a very carpet of white clover, although there's no telling what the winter may do to it. [It is the same everywhere we have been.—Ed.]

If you find more than one egg in a queen-cell it's a safe guess that laying workers are present. But there are exceptions. June 30 I found in No. 38, which had a laying queen, several cells containing 2 eggs each, and one with 4 eggs. July 26 much the same thing was repeated.

Years ago, when I was chorister in Moody's church, Chicago, a visitor sat beside me on the platform in Sunday-school, and quietly told me his business was trying to keep bad things out of the mail. I little thought then that he would do such a great lifework, for he was none other than Anthony Comstock.

A. I. Root, what you say about the liquor-traffic and counterfeiters, p. 18, ad. pages, set me to thinking. Suppose a community where counterfeiters abound should ask that a vote should be taken whether counterfeiting should be made legal. You'd scout the idea. Yet here in Marengo, where there are no saloons, the law allows a vote to be taken that may bring in saloons.

"Who invented the quadruple winter-case?" p. 875. Looks like it might have been invented by more than one, each ignorant of what was done by others. About 30 years ago I saw these cases at Dundee, Ill., at Jesse Oatman's. Some were one-story, for four hives, and some two-story for eight. I have an idea that Oatman invented them, as well as others. [Now who can go Oatman one better?—Ed.]

Phillips and Demuth, as quoted p. 878, say, "The ideal toward which the beekeeper should work is to keep his colonies during cold weather absolutely protected from wind." That explains why bees may be wintered outdoors in a still situation 200 miles north of here better than here, where the winds are severe and long continued. [Winter packing is not as important as seclusion from wind. Both are necessary, however.—Ed.]

Somewhere about 9 o'clock each week-day morning is a time of special interest, when the daily paper comes. This is Nov. 1, and I can hardly wait for the paper day after tomorrow, for then I'll probably know whether you've downed the saloon in Ohio or the saloon has downed you—for a while. [We didn't do it; but there is gloom in the liquor camp. They know we have made such big gains that we are sure to win in 1917 if not in 1916. We are going to keep up the fight; and if we make as much gain this year as we did last, we shall make Ohio dry in 1916.—Ed.]

Mr. Editor, you think, p. 879, that a queen just received by mail will be better accepted if her cage be put in center of brood-nest than if stuck in entrance. I wish we might know how that is. I use entrance because easier, but I've had a notion that a queen is more readily accepted there because she has a better chance to become acquainted with the fielders, and the fielders are the ones that raise a racket with a new queen. And I should expect it to work the same with a queen out of the mail as with another. [Possibly you are right. We should like to hear from others.—Ed.]

G. M. Doolittle, in addition to the good reasons you give for using full sheets of foundation in sections, p. 886, there's a very important reason that you do not give, although Allen Latham alludes to it, p. 888. If there were no other reason for full sheets, I would use them for the sake of keeping the queen from laying in sections. With starters the bees will build drone-comb, and then if drone-comb is scarce in the brood-chamber the queen is sure to go up unless an excluder prevents. Even with an excluder the bees will sometimes hold the drone-cells open for the queen. [This is a point that has not been sufficiently emphasized. We know it is true from many reports received.—Ed.]

That case of chilled brood, p. 833. Dr. Phillips leans to the view that in the fall, at close of brood-rearing, bees not only cease to care for eggs the queen lays, but drag out brood that has been reared. Possibly that may account for the supposed chilled brood, and possibly chilling may account for the brood that Dr. Phillips thinks the bees ruthlessly destroy. I rather lean to Editor Root's view, but I've seen things that favor the other view. I wish we knew. [In the case referred to, the dead brood was found only in front of the colonies weakened by foul brood, and in those colonies on which upper stories of wet combs had been placed for the bees to clean up. In this case the colony was made relatively small for the size of the hive.—Ed.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



A favorite question for discussion seems to be, "Do bees dislike black?" Well, just ask Uncle Milton, the old darkey who helped me one day recently. And then you might ask him how well blacks like bees.

* * *

Here is winter almost at hand, the long quiet evenings bringing their great opportunity for reading and study—an opportunity of measureless value to beginners, and seldom neglected by more experienced beemen who have found success lying always along the path of progress.

* * *

I am practically convinced that the dead brood I mentioned last month was chilled by that one sudden cold spell. A day or two after I discovered it I tried to show it to Mr. Allen; but the bees had cleaned up so thoroughly that there was little evidence left.

* * *

I believe I like Mr. Auten's watering-device, p. 583, July 15, the best yet, if it just won't prove a breeding-place for mosquitoes. It seems as though there would be scarcely enough movement of the water to prevent the wet sand and the grass, at the spot where the constant drip comes out, from being an ideal breeding-place for these pests. I should like to know how that has worked out in experience, for otherwise it looks like one of the simplest and most satisfactory plans of all.

* * *

Since mid-September our brood-chambers have been decidedly yellow, the top-bars of the frames showing a yellowish tinge, the cappings being a bright yellow. Does goldenrod produce that effect—assuming that they work it? I have never seen it so pronounced before. [Yes, we have seen comb honey produced from goldenrod that was yellow all over—honey, cappings, and section. In GLEANINGS for April, 1909, we showed a picture of some goldenrod honey that was very yellow, in contrast with ordinary comb honey.—ED.]

* * *

Though by this time the weather is gray and chill, that threatened early fall did not materialize, October and early November staunchly upholding all the traditions of golden autumn-time. "Fooled again," if I may quote Dr. Miller. And by the way, Dr. Miller, all of us will concede most heartily the inspiring possibilities of a beekeepers' meeting of three when that three happens to be the government entomologist, the editor of GLEANINGS, and the Sage of Marengo himself.

* * *

On page 491 Mr. Holtermann advises beginners to study the correct method of handling frames, and then to do it right. That may seem a little thing, but little things are very important. Tradition says that Michael Angelo answered a friend's protest over his painstaking attention to details, with the succinct remark, "Trifles make perfection, and perfection is no trifle." If big factories can pay out thousands of dollars to experts to install system and scientific management in their plants, to the profit of both owners and workmen, mightn't it be worth while for amateur beekeepers to pay out a little thought and attention to study the best ways to do things, and then a little persistence till the best ways become habits?

But I can *not* sit on that wiggly hive-cover! Not happily. It tires me immeasurably more to balance the unsteady cover than to kneel by the hive, which seems to be my favorite apiarian attitude.

* * *

An interesting letter from Mr. Bruce Anderson, Forsyth County, Agent in the Farmers' Co-operative Demonstration work of North Carolina, reports that the first year's work of the bee-club started in that locality last spring has been very encouraging, with a promising outlook for next year.

DEATH

So many things I do not understand!
My neighbor's house today is strangely still,
Insufferably sweet with heaped-up flowers.
Friends enter softly, greeting hand to hand;
A silence never-ending seems to fill
With shadowed hush the long, reluctant hours.

(Though once across the aching air so tense,
Insistent in his love and ignorance,
A baby broke the breaking hearts again
With quivered "When she tummin back? Oh when?")

Beneath a cloud-veiled sky and shaken trees
My slow steps brought me home, and all around
The withered leaves lay dead on every hand.
I stood at last among my quiet bees,
Stood there and stood, nor made the slightest sound—
So many things I do not understand!

Mr. E. G. Carr, bee specialist from Washington, is working in North Carolina at present, and they are planning to hold several demonstrations with his assistance. This year's crop was almost a failure in that state, the average per colony very low, and the quality nothing to boast of. But the beekeepers' ever-saving "next year" looms big with promise, with indications of plenty of white and crimson clover.

Mr. Anderson in his letter backed up Dr. Phillips' statements, page 853, Oct. 15, about the general need of the South by remarking that the industry among farmers in his state is very backward—"the box hive is generally used, with the idea that bees ceased to be profitable many years ago." He adds that instruction is the one thing most needed.

In this connection I want to mention Dr. J. S. Ward's work in Tennessee. Dr. Phillips says it is the duty of a bee-inspector not only to treat bee-diseases but also to give instruction. That is what Dr. Ward is doing in Tennessee. During the summer of 1914, in addition to lectures (and regular inspection work), he accompanied the state agricultural train in its tour of the state, carrying samples of up-to-date supplies, explaining their use, and constantly by talk and printed literature spreading the gospel of modern apiculture.

We are all deeply interested in the matter of wintering, as handled in the government bulletin sketched by the editors, page 876, Nov. 1. If anybody in these parts winters otherwise than in single-walled hives on summer stands I don't happen to know it. That being the prevailing practice does not mean, however, that some other way, yet untried, might not be better. Yet in talking over Dr. Phillips' contention that packing is well worth while anywhere in the United States, Mr. Allen made a point that seems to me logical: As you come south, the profits resulting from winter packing probably continually lessen. If that is so, somewhere on the way you are likely to cross a line below which that profit may become less than the increased expense. Now I wonder just where that line might be. I judge the bulletin shoves it quite out of the country, while the wintering generally practiced throughout the Southeast might suggest that most beekeepers think it coincides with Mason and Dixon's famous line. But such authorities as the authors of this bulletin command the instant and respectful attention of all beekeepers, so we promise ourselves the satisfaction of experimenting with packing-cases down here—perhaps not this winter, as we haven't yet a very definite idea of how we would handle it; but we are going to get (and study) Dr. Phillips' bulletin on the subject, and various other suggestions, and next winter we may put half the apiary in winter homes, charging the expense against them, and keeping strict account of the final results (dollars and cents results) as compared with the other half wintered the old way. (By the way, the "strict accounts" of this season are not pretty to look at.)

Another interesting question regarding wintering is in the value of supers in comparison to brood-chambers only. Several articles or letters in recent numbers of GLEANINGS (for instance, from Mr. Roebling) page 863, Oct. 15) speak highly of the results from wintering with the supers on. At least one of the most successful beekeepers around here reports excellent results from that system. We are leaving on a few supers ourselves this year. Now Mr. Roebling says his honey for wintering will be found scattered through the twenty frames. The editor, page 834, same issue, warns against too much hive room. If the supers give more space for the bees to keep warm, but no more honey, would they perhaps be more snug with all the honey packed into the brood-chamber, in just the ten frames? As a general proposition, are twenty frames, with a little honey in each, better than ten nearly full, in the smaller space of a single story? [Ten full frames are better.—ED.]

* * *

Now I want to ask another question—a hypothetical one, perhaps the lawyers would call it. You have decided you want your hives, with bees and stores, to weigh, we will say, sixty pounds. The first one you weigh pulls the scales to fifty. "Needs ten pounds," you say. Do you mean ten pounds of sealed honey? If so, how many pounds of syrup, two measures of sugar to one of water, will be required to make it?

Two quarts of sugar weigh about 3¾ pounds, and one quart of water about 2 pounds. The two combined make a scant 2¼ quarts of syrup, weighing practically 5¾ pounds (the combined weight of the sugar and water). By simple calculation from these data it is easy to know either the weight or the measure of both sugar and water required to make any desired weight or measure of syrup. But what weight of syrup is required to make a desired weight of "stores"? [We usually figure on 20 lbs. of sealed stores, including combs, as sufficient for northern wintering. Twenty-five or possibly thirty would be better for the South.—ED.]

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



By the time this is in print, the Ontario convention will be a thing of the past. We are hoping for a good attendance, and feel quite sure that we shall have a profitable time. These annual meetings serve a good purpose in more than one way; as, aside from the possibility of gaining some useful information, the social side is often too little appreciated. "Man is a social animal," a certain writer has said; and when we meet any one without any semblance of this trait we are at once apt to think him abnormal. In our brushing side by side with one another in convention discussions we are pretty sure to get the conceit knocked out sooner or later.

* * *

As intimated in my last "Notes," the honey market has been good and is still brisk, at least in so far as I can learn locally. My own crop has all been sold for some time, and I have been forced to return money for orders sent me. While I tried to get honey to supply this demand, prices quoted did not warrant the handling, much as I should have liked to fill all orders that came to me. Of course we did not feel like doing the business at a loss, and at the same time I am pleased that all the beekeepers I wrote also seemed to be getting good prices, as the general market is much more important than any little business I might do in handling some of the honey.

* * *

Since Oct. 15 we have had very fine weather here in Ontario, with much less frost than usual at this date. On Nov. 8, and in a sheltered spot, I have just noticed some tender vines still untouched. There should be no excuse this fall in the matter of feeding the bees for winter when such care is necessary, in so far as the weather is concerned, anyway. Our own bees have all been packed for winter for some time now; and during this fine mild weather we have been wondering if it would not have been just as well to postpone this work for a week or two. On the other hand, if weather should have turned out cold and stormy, as it often does at this date, then we should have been sorry bees were not packed.

* * *

Mention is made in an editorial, page 688, that, owing to so much rain, a lot of clover is still in bloom, and this will likely increase the yield per colony here in Ontario, as given in report the editor quotes from. Yes, we have had more or less clover in bloom; but in our locality, at least, "clover out of season," if I dare use the phrase, never yields much honey. Does it do so in other places as a rule? Some years the bees appear to work on clover quite freely during late August and early September; but I have yet to see any surplus stored from it; but, of course, other places may tell an entirely different story.

* * *

What would be the advantage if a process of filtering dark honey were to become a commercial success (page 829, Oct. 15)? As I see the matter, it would be better to leave things as they are. The dark honey has a place to fill, even if the price is lower than the white; and have we any assurance that the flavor would be changed by this process? If such is not the case, "filtered buckwheat honey" would still be buckwheat honey, even if white in color instead of amber; and such a condition would not be likely to help the sale of either the naturally white or the artificially colored article. There may be some good reasons for desiring to have the dark honeys made white; but as yet they do not seem to be much in evidence. A number of years ago I remember of this plan being mentioned; but so far as I know it did not prove a success. Perhaps the same thing may happen this time, and so comment may as well be postponed till we have something more definite. [See the statement by L. R. Casablanca, on same subject, page 993, this issue.—Ed.]

* * *

The question of aster stores has been much in evidence during the past few years; and after all that has been written on the subject is studied, the matter seems to resolve itself into this: Aster honey in some parts of the country is altogether different from what it is in other sections, whether this fact is attributable to weather conditions, soil, kinds of asters, or what not. As stated on page 829, Oct. 15, that these stores are all right if sealed, we should be inclined to agree, judging by our limited experience; but, on the other hand, well-known authorities from the middle South have written me that in their locality even the sealed combs of honey in strong

colonies will, during cold spells, "weep" and break the cappings, and then the honey sours. Whether this is partly caused by the fact that most beekeepers in these localities give no protection to the bees in the winter is another matter; but I suspect this may have something to do with the question. As a matter of experience I can only repeat that at the Lovering yard, where the bees had little but aster honey for last winter's use, no bad effects showed; and in some queenless colonies that must have perished early in the winter solid combs of this honey were in the hives till early spring, and there were no signs of any of it turning sour, although it was quite thin in body when cells were opened.

* * *

On p. 793, P. C. Chadwick says, "There seems to be a disposition shown to 'knock' yellow bees." As one who has a few times given the goldens none too good a record, I want to hasten to explain that, if "the wish is father to the thought," I certainly would try to do otherwise, as some very close friends of mine happen to be breeding these bees. Goldens may be all right with Mr. Chadwick and others who have them—in fact, I am sure such is the case; but I want to say without fear or favor that, in our own personal experience, we have yet to get the first golden colony that would measure up to the standard of ordinary bees when all things were taken into consideration. The great majority of those I have tried have been very inferior honey-gatherers; and the few that were an exception to this rule were no use whatever in the matter of wintering outdoors. There is not the slightest doubt about it; that all golden bees I have had have been totally unfitted to stand the rigors of our winters when bees are left outside; and this fact alone condemns them for my use, as I practice that method exclusively. I happen to know that the great majority of the producers in Ontario have had a like experience, so it is not to be wondered at that this race of bees comes in for "knocking" in northern localities.

* * *

Any comment I might make on Bulletin No. 695, Washington, D. C., on the subject of outdoor wintering of bees will no doubt be much in line with the fable of the fly and the ox. The fly started to apologize for sitting on the ox's horn, and the latter informed the fly that he didn't even know he was there. But with all due respect for the opinions of the able authors of the work in question, I cannot help thinking that some of their conclusions are a bit extreme, to say the least.

In regard to the question of stores, and the large mortality caused by said stores being "inadequate," any one who has been at all observant must agree with them fully. The word used is a very fitting one, for it covers the question of quality as well as the amount, even if I have been in the habit of thinking that it was more properly applied to the question of amounts. But to say that "excessive heat production" is such a great factor in causing winter losses appears to me to be "putting the cart before the horse." After all, in plain words it is simply a case of cause and effect. The prolonged cold spells, often accompanied by poor stores in the hive, is the *cause* of all the trouble. The activity, which, in other words, means increased heat production, is the *effect;* so there you are, free to form your own opinion as to whether cold or heat causes the trouble. For my own part I shall continue to believe that cold causes the bees to get dysentery; and when some one in the South proves that heat brought about a like effect, then I shall be ready to change my views.

"The beekeeper cannot apply too much insulating material to a hive" is another statement that many of us chaps in the North will question. The packing at the experiment apiary near Washington, as described in this bulletin, is 3 inches below, 5 inches on ends, 6 inches on sides, and 8 to 12 inches above; and the comment is made that, further north, more would be necessary. Personally I would consider the three-inch packing at the bottom entirely unnecessary, and in many ways a nuisance. Twelve inches of planer-shavings on top is abundant, and I should not want more than 6 inches around sides and ends—in fact, I should prefer less than that at the fronts of hives. Of course the foregoing remarks are only my own personal views; but I fully believe that a moderate amount of insulation along with an abundance of good stores will give results good enough to suit anybody, even in this cold latitude, where we have long winters with sometimes five months without a day warm enough for good bee-flight—at least that has been my experience. One thing the beginner can bank upon is this: Abundance of good stores are necessary; good protection is also necessary, but the stores question is many times more important than all else. This is at least true in our northern sections. Further south, where flights are more frequent, the quality of the stores may not be so important a matter.

Beekeeping Among the Rockies

Wesley Foster, Boulder, Colorado.



Mr. W. B. Moore, of Illinois, has been in the West for five months looking up beekeeping prospects and a location. He wants (and probably will find) a good beekeeping location with good educational facilities for his children.

Mr. D. C. Polhemus, of Lamar, Colorado, our largest operating beekeeper, had almost a complete failure in honey this year; but to hold his honey trade he has already bought two cars of extracted and considerable comb honey. A very neat little story could be told of his persistence in building up his trade to where he has to buy in such quantities. It has been true for several years that his sales have increased more rapidly than his production, and he owns and operates more than two thousand colonies.

WINTERING BEES.

We have had a very open fall; and up to ten days ago, or well into November, the bees were storing honey from sweet clover.

This is not any too good for the bees, as they will not be able to ripen this honey fully, and it may cause trouble later. Little breeding has been going on except in those colonies with young queens that are not very populous. Most colonies are going into winter in good shape except that they are not up to the average in the number of bees.

THE HONEY MARKET.

Comb honey has moved in fair shape except in a few cases. There has been a slight slump in prices in some quarters for carload lots, but local orders hold up well in price. There has never been a year when it was so easy to get above $3.00 a case for the better grades. One or two markets report a large supply on hand, and slow sale on account of the high prices.

Early in November several cars of comb honey were offered in the West at $2.75 for fancy, $2.50 for No. 1, and $2.30 for No. 2, with no acceptances. This honey was packed in single-tier cases, and the freight rate is high from these points.

Extracted honey has been selling well, and, with the advent of cold weather, the trade will become brisk. Sales are made at from five cents a pound up, according to color and quality. White honey brings about 8 cents wholesale.

Sugar is now on the rise, and the way conditions are now, some beemen should be able to sell honey for the same figure as sugar. Such a time is auspicious for extending the use of honey in cookery.

HONEY-LABELS.

Beekeepers should by all means use labels on their honey-packages. A neat label is a good advertisement. The label on a glass package should not cover up too much honey, neither should it be so small that it looks only like a sticker. In choosing a label I avoid white, for the reason that it will soil more quickly. A yellow stock of paper is good, or a blue stock with white letters. The words "Pure Honey" should be prominent, and there should be some directions as to the care of honey.

The gummed labels are much to be preferred for glass and I am using them on tin also; but there is some difficulty in making them stick on tin. I have used vinegar and ammonia to wash the can with before applying the label. Ammonia works the best, but is not very agreeable to handle on account of the odor.

Probably the ungummed label for tin is the best, as it is no more difficult to apply the paste than the ammonia to make the gummed label stick.

EUROPEAN FOUL BROOD.

I have received a letter from Mr. Grover Matthews, of Filer, Idaho, saying that caging the queen has worked better with him than transferring, and that the first outbreak of the disease is the worst, generally. This disease is so variable that the experience of one man may not be the same as that of another. I do not want to speak out too strongly against caging the queens in European-foul-brood colonies; but it has been my observation that transferring and requeening produces results while caging the queens has not. I would not advise any one to temporize with the disease. Generally it works so fast that one is given no chance for temporizing.

Another thing that might be mentioned is this: Do not read everything on European foul brood before you get busy with it if it is in your apiary. A little actual experience mixed with the reading helps wonderfully. Nothing will so confuse one as reading all the contradictory experiences of the beemen printed in the journals. You will not have all their problems in your apiary; and if you try to apply everything you read, European foul brood will likely get the best of you for quite a while.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



WHY THE DIFFERENCE?

"The past summer some of my colonies stored nearly twice the amount of honey that others did. Is this usual? Why the difference? If we can discover the reason we might find a remedy."

There are not many observing beekeepers who have not sooner or later noticed that some of their colonies not only stored enough honey for their own use but have given a surplus of from five to fifty pounds, while most of the others in the same apiary did little more than make a living. This condition is more noticeable in poor seasons than in seasons giving a rich flow of nectar. In a good season it has also been noticed that some colonies gave a surplus little less than marvelous in comparison with others, all having access to the same pasturage, and all coming out in the spring in apparently the same condition. I say "apparently," but it is not often that these conditions will hold good to the beginning of the honey harvest, for many colonies will outstrip others in the brood-rearing race during the first month after they commence active operations in the spring.

We are often told to keep all colonies strong, as it is only such colonies that yield a surplus; but this is not always possible, even were it desirable. With the uneven results obtained from the whole apiary, with colonies apparently of equal strength in the spring; combs, hives, and pasturage apparently the same, there must be other factors not easily discovered to cause such unequal yields.

From years of observation I believe that there exists a certain something which we call a "condition," under which a colony will gather the most honey, whether it be extra strong or not up to even an average If such condition has not yet been reached, or if it has been passed, the storing of surplus will not be so vigorous as it would otherwise be.

What is this condition? The ideal colony must have a perfect queen; be sound in body, in her prime, vigorous, hardy, and prolific, her progeny active and diligent. But such a queen alone will not make an ideal colony. At the right time—that is, when clover, basswood, or fall flowers are in their prime for nectar secretion—there must be the maximum number of field laborers and plenty of empty comb so that no time or nectar be lost in the secretion of wax and building of a place in which to store it. The ideal colony must swarm at the right time or not at all—that is, so early that the young queen in the parent colony becomes fertile, and the prime swarm has its combs completed during the first quarter of the blooming of the flowers which give us the main flow of nectar of the season.

The ideal colony must not be over-populous too early in the season. A colony is over-populous when the working force is so great a week before the honey harvest begins that the bees contract the swarming fever because the hive is too small in comparison, and the wax-secreting bees too few. Such a condition seems intolerable to the bees, and they try to help themselves by loafing. Their instinct seems to teach them to begin this loafing even before the hive is over-populous. A colony in such a condition will never perform the wonders in gathering nectar that we may expect from one less populous at the very commencement of such nectar flow. The over-populous colony realizes instinctively that its abode will soon be too small, and the swarming fever sets in; and even a novice knows that such a colony is of little value as a honey-gatherer.

The ideal colony is not kept at home during the best nectar-flow by nursing too much brood. If there is too much brood in proportion to the working force, most of the honey will be consumed by the brood. With bees which rear a large amount of brood during the main nectar-flow, or near its close, although they are strong in bees and the queen faultless, the combs will be mostly empty, and will stay so, unless there is to be another nectar-flow of good proportion from ten days to two weeks later.

One of the great points of superiority with the Italian bee is that, when the big harvests of nectar from the clover and basswood come on, the main energy of the bees seems to be bent in the direction of securing the harvest, brood-rearing becoming a secondary consideration. If, through our management, and with a race of bees which will yield to our control, can be found something that will make all colonies give a yield equal to the very best in the past, so that all colonies will come up to the "high-water mark," a great stride will be made.

GENERAL CORRESPONDENCE

BIBLICAL REFERENCES TO HONEY

BY W. P. ROOT

The first mention of honey in the Bible is in Genesis 43:11. Jacob sends some to the unknown Egyptian ruler who is afterward revealed as his lost son Joseph. Egypt then, as now, was practically destitute of honey flora, while Palestine abounded in it as well as in countless places in the rocks where bees could find excellent shelter all the year. "A land flowing with milk and honey" is a frequent description of Palestine as recorded in the Bible.

In Exodus 16:31 we find the oldest reference to honey as an integral part of human food. The passage would imply the use of honey as a staple article of food in conjunction with other things.

In Leviticus 2:11 is an injunction against the use of honey in burnt offerings. This arises from the difficulty of burning it in the first place, and also from the disagreeable smoke that would necessarily arise from honey on hot coals. The passage indicates a peculiar regard which the Jews had for honey in connection with religious rites.

In Deuteronomy 8:8 honey is referred to as one of the great staples of the promised land. The same idea is repeated in II. Kings 18:32, but in connection with or relation to Assyria, the blasphemous Rab-Shakeh tempting the Jews to submit to the king of Assyria, saying his country had honey as well as Palestine.

In Deuteronomy 32:13, among the blessings conferred on Jacob as a nation he is said to be caused to suck or derive honey from the rock—a graphic reference to the habits of bees in that respect. John the Baptist doubtless obtained his "wild honey" in the same way, as recorded in Matthew 3:4.

In Judges 14 we find the remarkable account of Samson finding a colony of bees in the desiccated carcass of a lion—an indication of the great number of bees then to be found in Palestine. As Samson had killed the lion but a few days before, it might be deemed an unsuitable place for bees; but as many carnivorous animals and insects abound there, it is no uncommon thing to find a dead animal entirely removed in a few hours, all but the bones. This work would be greatly hastened by the intensely warm and dry air of that climate. Later on at a social gathering Samson challenges the company to mention anything sweeter than honey.

In I. Samuel we read that Saul's army was distressed by hunger, as he had forbidden his men under penalty of death to eat before sundown. They came to a place where honey was found "on the ground," or, as some might understand it, within easy reach. Jonathan, a son of Saul, not knowing of his father's inhibition on food, stuck a rod in some comb honey, and, eating it, was greatly strengthened and revived. When told of what his father had said, he said he wished they had all eaten of the honey so that they might have punished the Philistines more severely. Later, when Saul insisted on his inhuman order being carried out, the people arose and prevented it. The incident shows the salutary effect of honey, even when eaten in large quantities on an empty stomach, as was doubtless the case with Jonathan.

In II. Samuel 17:29 we read that Shobi, an Ammonite, one of a nation very unfriendly to Israel, with others brought to David, when he was fleeing from his son Absalom, a large quantity of delicacies, among which is mentioned honey. This indicates a more general use of honey than we now witness.

In I. Kings 14:3 we learn that the wife of Jeroboam the king was directed to take with her a cruse of honey when she went to confer with the prophet Ahijah. This would imply that honey was a fit gift even for royalty itself to offer; and the prophets then were held in greater eseteem than kings.

During a great religious revival under Hezekiah, as recorded in II. Chronicles 31, a prodigious quantity of the best of the land was brought to Jerusalem to make a national holiday, and honey is mentioned as being one of the food supplies; and even to this day the Jews make much use of honey in their numerous festivals, all of which are of a religious nature.

In Job 20, Zophar, in replying to Job, says the wicked shall not see the brooks (streams) of honey, this indicating, probably as long ago as the time of Abraham, that honey was a staple article of food.

In Psalm 19 David compares the judgments of God to honey as if that were the highest form of praise for what he consid-

ered delectable. In Psalm 119 the same writer uses the same metaphor in speaking of God's words. Probably honey reminded him of how near it came to costing his friend Jonathan his life.

In Psalm 81:16 David says honey is one of the good things God would have given to the wicked had it not been for their perverseness. Here, again, honey is spoken of as being found in the clefts of the rocks.

In Proverbs 24:13 the writer advises his son (pupil) to "eat honey, for it is good." In chapter 25:16 the same pupil is warned not to overeat honey, but to stop when he has enough. The warning shows the liking the young people had for honey in those ancient times.

In Isaiah 7:15 is a remarkable passage predicting that the Messiah, Christ, would eat honey, which prophecy was fulfilled in Luke 24:42, where Jesus was regaled with honey after his resurrection from the dead.

In Jeremiah 41:8 the treacherous Ishmael is persuaded not to kill ten certain men whom he had captured, as they had treasures of honey and other things hidden in a field. Probably he cared more for their honey than for their lives.

In Ezekiel 3:3 the prophet is commanded to eat a roll of manuscript, which he did—probably figuratively. To give an idea of its agreeable effects he says it was like honey for sweetness. In chapter 16 honey is spoken of as one of the great blessings God had conferred on the rebellious city of Jerusalem. In chapter 27 of the same book, honey is spoken of as being sold to the merchants of Tyre—another indication of the abundance of honey among the Jews.

In Matthew and Mark honey is said to have been a part of the food of John the Baptist.

In Revelation 10:9 John was commanded to eat the book. This was bitter in taste, but as sweet as honey afterward. This was possibly in vision as in the case of Ezekiel.

In several places in Proverbs honey is spoken of as a standard of sweetness. Where honey-comb is spoken of in the Bible as being eaten, we should always understand comb honey; but the Hebrew word "dabash" indicates what we used to call strained honey, the same word being called "debs" by the Arabs of today when speaking of crushed comb honey.

Medina, Ohio.

ONE WOMAN'S WAY OF LIFTING SUPERS

BY FLORA M'INTYRE

Grace Allen is puzzled over the lifting problem. My mother does considerable work alone in the apiary, and she manages the lifting of heavy supers thus: Carrying along an empty super when she goes into the apiary, she places it on the ground at the back of the hive to be opened. After prying the super free and applying a little smoke she half slides, half swings the super along on the empty one in the rear. When she is ready to close the hive she swings the super back on to the brood-chamber in the same manner. In this way the heavy super does not have to be lifted or lowered from the level at which it rests, and that eliminates what is usually the very hardest part of the lift. Not long ago my mother wished to put a super of empty combs under one that was full of honey. She lifted the full one off in the manner described, and found that it was very heavy. After putting on the super filled with empty combs the problem was



Swing the heavy super on to the empty one.

how to raise the heavy one up to the third-story level. It seemed about impossible until the inspiration came to place an empty super on top of the hive and transfer the heavy combs one by one. This method is slow, but perhaps not as much so as waiting for some one to come and help. It could be used in moving the second story if necessary; but the mother is small, and not at all muscular, and she has found that an empty super to swing it on to is all that is needed. However, she says that, if she were starting in business with a new equipment she would try the shallow supers because of the greater ease in handling, and in spite of the fact that the brood and super combs would not be interchangeable.

Ventura, Cal.

[The plan here outlined is perfectly feasible, as we have tried it on numerous occasions.—ED.]

BEE-NOTES FROM HOLLAND; OUR BEEKEEPERS' ASSOCIATION

BY J. H. J. HAMELBERG

We have only one association of beekeepers in this country. Considering, however, that the whole of Holland has only about six million inhabitants, this one association may be said to be all that is wanted. At the beginning of this year it counted 6574 members (which means one member to every 100 inhabitants), divided over 121 districts, each of which has at least 25 members. Each district has its own officers, and can make its own by-laws and regulations when these do not conflict with the statutes of the association or with the resolutions of the annual conventions.

The yearly contributions of the members is one guilder (40 cents), each district having control over the contributions of its members, under the obligation, however, of holding three-fifths of these at the disposal of the General Board of Directors. Persons wishing to become members, but not desiring to reside under the district board of their places of residence, can do so; but the contribution is then doubled. Voting for membership is not required. To become a member one has only to send in his name.

Every year, in April, a general meeting of the members takes place. Each district can send a delegate to this annual convention, who then represents the entire district, and has to vote in accordance with the opinions expressed by a meeting of the district members, previously held, or according to the instructions the district board may have given him. He may bring out one vote for every twenty-five members of his district, but is never entitled to more than six votes. Once a district is represented by a delegate, its other members, although having the right to assist in the meeting, and there have their say, are not entitled to vote, neither have the members not belonging to any district such right (which seems rather hard on them).

It is to be regretted that this annual convention lasts only one day. The reading of the yearly report of the secretary, the discussions about the budget, the election of commissions, and other official business, take up so much of the meeting's time that there hardly remains an opportunity for the discussion of the pros and contras of different matters recently brought forward in bee-management, nor for the exchange of experiences of the practical beekeepers present at the meeting.

As evening approaches, one may notice every now and then a member or district delegate who has to catch the last train to reach home that night, leave the assembly, and, as a rule, the latter part of the program has to be hurried through. No wonder that, except the district delegates, so very few members assist in these annual conventions where they seldom hear anything of practical use to them.

This year two papers were read at the convention, one treating on the rights on stray swarms, the other discussing the desirability of introducing a species of red clover accessible to bees, and of the same value for feeding purposes as the red clovers cultivated in this country. Both lecturers proved to be well posted in the matters treated by them; but their practical value to an audience of beekeepers seems rather doubtful. We have no legislation on the rights of ownership of stray swarms, and it is, in fact, of little value to the practical beekeeper to hear what should be, but what is not. And as for the desired species of red clover (the benefits of which will hardly need to be demonstrated to beekeepers) this is a subject for the researches of our agricultural experiment stations, while the introduction of such a species, whenever found, would surely be in better hands by the farmer than by the beekeeper.

Although one can appreciate the attempt of the General Board of Directors to make the annual conventions more attractive to the members, it cannot be doubted that such



Apiary of W. van Os, Leerseem, Holland. Mr. van Os is secretary of the Holland Association of Beekeepers.

purpose would be realized sooner by giving the members an opportunity of hearing at these conventions something of practical value to them than by asking them to listen to the reading of treatises, however learned and thorough, on subjects like those treated this year—the one being more appropriate in a meeting of jurists and legislators, the other being a matter to be submitted to our Agricultural Department. Once the conviction gained ground with our beekeepers, especially with the "small fry" among them (who are most in want of instruction), that their attending the conventions would lead to their better knowledge of profitable beekeeping, the meetings would surely be better attended, and our practical beemen would not consider having done their duty by delegating one of their district members to these conventions. And as will be shown in following articles, it cannot be said that our beekeepers are not in want of some better ideas about modern beekeeping.

The association issues a monthly periodical, usually containing twenty pages of reading matter in small octavo. It contains the official communications of the General Board of Directors and of the district boards, articles by the editor and of the members, and, occasionally, extracts from GLEANINGS and other foreign bee-papers. There can be no question that the editor tries his best to give his readers something in good style and form; but he is rather handicapped by the small amount ($800 a year) put at his disposal for the paper, the printing, and the gratis distribution of the periodical among the members. Considering his salary of $100 a year, the editor's work cannot be considered otherwise than one of love; and to expect more of him would simply be presumptuous.

For many years the association has been presided over by G. Baron de Senarclens de Grancy, a courteous aristocrat of the old French school, and at the same time an influential man who felt warmly for beekeeping and beekeepers. Advanced age and want of time obliged him last year to request not to be re-elected, and, although with great regret, the annual convention had to respect this desire. During his long term of presidency, the association has brought about some very good measures; *e. g.,* a government grant for the appointment and salary of an official to instruct and advise our beekeepers by visiting their apiaries and by holding lectures all over the country. I don't doubt that Mr. van Giersbergen, who holds this position at present, and who, we beekeepers hope, will be continued in it for many years to come, will often meet with the same distrust our first professors in agriculture met with on the part of such people as believe practice to be all and science nothing. It is manifest, however, that this want of confidence is gradually disappearing, and it has often been demonstrated how his lectures take.

Another good thing obtained during the presidency of Baron de Grancy has been the freedom of duties on sugar (which are high in this country) used for feeding up bees for wintering. Before distribution among beekeepers this sugar is mixed with some ingredients to unfit it for housekeeping purposes, usually with "paprika" (red pepper, ground very fine). Besides, every beekeeper is entitled to only a certain quantity per colony (usually fixed at 16½ pounds), and our customhouse officers have the right to visit all apiaries to ascertain that not more sugar is applied for than the amount to which the owners are entitled. This adulteration does not seem to injure the bees. They take up the syrup readily and winter well on it. Until recently only white granulated beet-root sugar had been distributed; but last year the General Board of Directors decided to purchase unrefined sugar, which has not been a success, and won't be repeated. It seems to have been done for economy's sake, the sugar having gone up in price considerably on account of the war. But, as I have been told, some beekeepers have, unfortunately, suffered severely on account of this economy.

Our association has also introduced a diploma for beekeepers. Any one desiring to obtain it has to pass an examination before a commission appointed by the General Board of Directors, and of which the bee-expert, before mentioned, always is a member, the other members being chosen among well-known beekeepers and officers of the association. The institution, however, does not seem to be very popular, as very few practical beekeepers submit themselves to this examination. Neither is this to be wondered at. One may be thoroughly well acquainted with the methods of profitable beekeeping without being able to expound the anatomy of bees and flowers, or without knowing the construction of different makes of hives, as is asked by the examiners. The practical demonstration that candidates have to give of their ability to handle bees is necessarily limited for want of time, only two hours being put aside for it.

When wanting help, most beekeepers will rather judge a man's ability after having had him at work for a day than by his holding the association's diploma. Still, the possession of it proves the holder not to be a stranger to bees. As such it has some value; and the fact of its existence will help to convince the outsider that there is something more in beekeeping than putting down a hive in spring and gathering the honey in autumn. And it does not appear superfluous to combat this idea, for even our government seems to hold it.

We have government experiment stations galore for the promotion of the interests of the farmer and stock-breeder; but in the matters of beekeeping and poultry-keeping, very little is done by our government, which mainly contents itself by giving a grant to our beekeepers' and poultry-keepers' associations. Having done this, it seems to think that it can leave the development of these two branches of agriculture to private and individual initiative. It has not awakened out of its lethargy I mentioned seven years ago, and, as yet, it does not seem to have the least idea of the scientific problems attached to the full development of beekeeping and poultry-keeping; for if it had, it surely would not believe that the solution of these problems will ever be reached by giving the respective associations grants of between $1000 and $2000 a year, which amounts would not constitute even a reasonable salary for one scientist to devote his time and knowledge to these problems, not to speak of the cost of buildings, grounds, and other supplies indispensable for thorough scientific researches.

It must be said that the association with its limited means does what it can do in this matter. A few observation stations have been erected, the managers of which regularly send in the data of the temperature and rainfall at their apiaries, and of the increase or decrease in weight of their colonies, which data are published in the monthly periodical of the association. Valuable as these observations may be, they won't bring us much nearer to rousing our government into action.

For this reason it was very wise on the part of one of our members to move at our last convention that the General Board of Directors take the initiative for the erection of an experiment station for the promotion of beekeeping, and the board has already taken steps in this direction. But at the same time it would be but right, I think, for our beekeepers to point out their interests to their representatives in Parliament, and refuse their support to such candidates for election as are not prepared to further these interests. At present, hardly a voice is ever raised in our House of Commons for the promotion of the interests of beekeeping and poultry-keeping.

But this state of things would surely become otherwise if all beekeepers and all poultry-keepers in the country would club together and give their support to only such men as are well convinced of the absolute

necessity of improvement of the present conditions by the government.

Last, but not least, the association tries to come to a more uniform packing and grading of honey, and to a better co-operation among beekeepers in the matter of disposing of their crops and the purchase of their supplies. To further this purpose, a chamber of commerce (as it is called) has been instituted; but whether or not it will prove a success remains to be seen. The interests of many beekeepers would certainly be greatly advanced by a general office, as instituted. But opposition from the trade is surely to be reckoned on, and the great difficulty will always be to find the right man to head such an office, while it won't prove such an easy matter either, to convince the smaller fry that co-operation in these matters must necessarily result to their profit.

Soest, Holland.

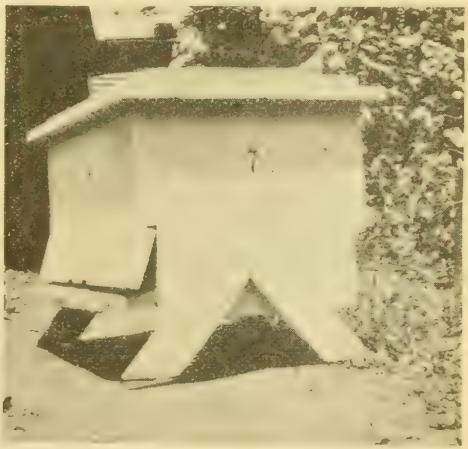
ANOTHER WAY TO GET A START

BY DR. G. R. RICHARDSON

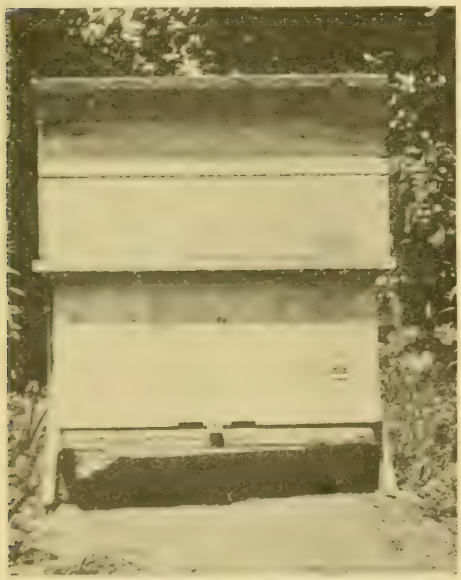
In the fall of 1912 I happened to remember an old-time beekeeper who had died several years before, and I wondered if there were any of his old hives still left. I investigated, and found that out of an original 700 there were 240 still holding together.

I interviewed the widow, and she asked 20 cents apiece for them just as they were. I finally offered her $25.00 for the lot for kindling-wood; and after properly demurring she accepted my offer, and I am sure that she at the same time smiled in her sleeve. I did not at that time tell my wife how much I really did pay for them, nor did I tell her that it cost me a dollar a load for ten platform hayrack loads to have them hauled a mile. The teamster agreeing to take a load of broken covers for one of the dollars somewhat quieted my conscience, and I started in to clean up the immense pile of hives. By the next spring I had them sufficiently cleared away to be able to find the barn, and furthermore had sold the old worm-eaten combs for $10.00.

These hives (Fig. 1) were 26 inches long, 16 deep, and 41 from the ground to the middle of the cover when the super was on. Each hive stood on four legs nailed to the ends of the brood-chamber, which was 18 inches high in front and 12 in the back, and held 14 frames, with the bottom-board nailed on, and sloping from back to front (so that the worms would fall off the combs and roll out the entrance!) which extended clear across the front, and was hinged so it could be opened fully three inches.



Each hive rested on four legs.

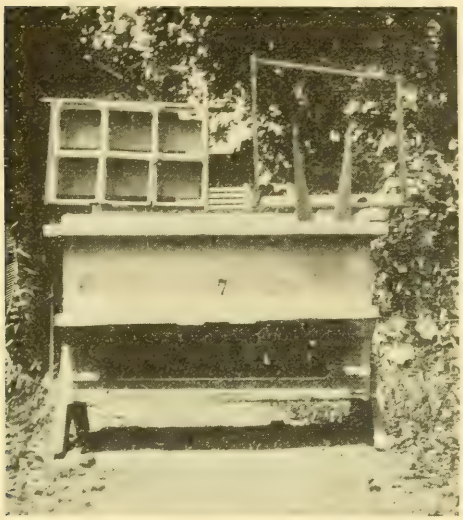


The hives were each over twenty-six inches long.

The frames (see illustration) had thirteen inch top-bars with a three-cornered piece to fasten the foundation on, and with closed ends. The bottom-bar was at an angle to follow the bottom-board, and rested on a

cleat at the front; and the back lower corner rested on the bottom-board. Two follower boards were used, one in each end, and they were held in place with two wedges to each board.

The bee-space between the top-bar of the brood-frames and the bottom-bar of the section-holders was all the way from an inch to two inches, according to whether they



The bottom-bars of the frames were at an angle to follow the bottom-board.

stayed on the cleat or dropped off. And the supers—such supers! Twenty-seven inches from end to end, 12 inches from top to bottom, and 18 from front to back, with 12 section-holders, each of which would hold six sections. I know that they would hold the sections, because I tried to get some of the old ones out. Each had two three-inch strips of tin nailed on one side, presumably for separators; but I may have been mistaken as to their use. It may have been to keep the sections from coming out; and if that was what they were for they were a grand success. I do not wonder that this old-time beekeeper was of an irascible nature.

The lumber in these old hives was soft white pine, light in weight, a full inch in thickness, straight-grained, and all nailed with cut nails, mostly ten-penny casing. Just imagine pieces of pine 24 x 26 inches without a knot, and so soft that a ten-penny nail would not split one when driven half an inch from the end! I certainly did get my $25.00 worth in working them over during the winter evenings in my shop in the furnace-room. I made fifty good hives of another and better pattern, of which I have never seen a description in any book or paper, although it may have been described before my time. It was not an invention of mine, but of a very successful beekeeper of my acquaintance. With his permission I should like to tell about the hive at a later date, as it embodies some features that I think excellent, especially in the super. This has no T tins nor other support, but is so made that the frames are self-supporting.

Besides these fifty hives that I could not buy for less than $4.00 apiece, I have kindling enough to last several years, all cut and resined, and have so far sold nineteen old hives, just as I got them, for a dollar apiece, and have four more yet to sell.

With the best of the lumber that was left after building my fifty hives I then built a house, or shack, ten by twenty, with a porch of the same dimensions, in which I live with my family of four during the summer.

I did not buy a stick of lumber, not even a two-by-four which I also made by nailing pieces 26 x 11 together, breaking joints, and then ripping. These gave me two-by-fives that I used for joist and studding.



In the new hive the super is so made that the frames are self-supporting.

The roof and sides are made by nailing the end boards and follower boards, which are 12 x 14 (of which I had over a thousand) to strips of the 26-inch pieces, and then to the studding. The roof is sheeted with these small pieces, and then covered with regular roofing-paper, which is painted with powder paint. The cost of the



With what was left I built a summer cottage for my family.

whole building did not exceed $20.00, the largest part of which was for the roofing. Even the nails were, for the most part, the old nails, of which I picked up and straightened out over 67 pounds. I did the work all myself with the help of a friend who is also a little-red-hatchet carpenter, and did not lose a single day from the office.

The shack is located on a hill overlooking a beautiful valley, fifteen minutes from town on the interurban line, and is surrounded by fine oak-trees of several species; and, besides being a delightful place to spend the summer, it is a good location for bees. We have plenty of white clover some years, acres of sweet clover every year; willow, some basswood, dandelion by the acre, and plenty of catnip. Hound's-tongue (*Cynoglossum officinale*) is simply taking the pastures in this section. My wife is my partner; and what I do not think of she certainly does; and when I become discouraged she enthuses, and *vice versa*.

The first year we started with two colonies of bees. One of them we moved from town, and the other was a swarm from a neighboring farm. Something happened to the queen we took from town, and the other colony we evidently managed to death—any way, we started over again the next spring, this time with two queens and two half-pounds of bees. One of these queens went the way of the first, and we bought another, which we succeeded in introducing successfully. The next spring we again started all over again, this time with two full colonies, which we tried to divide by removing the queens and waiting for queen-cells. One queen we killed outright while trying to clip, and the other took a swarm out while we were looking over the frames. They did not even take time to settle, but evidently knew where they were going, as we chased them nearly a mile through the fields without finding them.

We succeeded in making them queenless, and then some, as there were no eggs in either hive. After waiting in vain for queen-cells we bought six virgins which we introduced. We were successful with four, and in the mean time caught a fine swarm in a decoy hive. So we now have the best start that we have ever had, and are once more enthusiastic. We have learned a few things about bees in our three years' experience, and comfort ourselves with the thought of Dr. Miller's eleven years at beekeeping with only two colonies to show for it. We think that we may yet win out.

We certainly have the love of the pursuit all right, and are long on theory but short on experience. We are acquainted with them all, from Dr. Miller to Doolittle, and from Miss Emma Wilson to Frank C. Pellett—also Dr. Bonney.

Princeton, Ill.

A NEBRASKAN'S HONEY-HOUSE

BY LOUIS MACEY

When I first began keeping bees I used a spare upstairs room in the house to store the honey and odds of equipment, together with such supplies as would be damaged by the weather. I also used the kitchen as a workshop for putting up sections and repairing hives; and as honey tasted mighty good those days, the "missus" was very indulgent of the "muss;" but when it came to scraping sections (even with plenty of papers spread around), that was a different kind of "muss." As I got close to 70 or 75 colonies, and the taste of honey grew old, and the stored honey and junk overflowed into the attic over the shed room and filled it up, I saw I had to have a special building.

As I had done well with my bees, liked the work, and felt that I was in for keeps, and as I also gained some experience of what a mouse can do in the way of damage, I decided on cement. We made the blocks ourselves, using a fifteen-dollar mail-order-house machine, and a rich mixture of one part cement to 4½ parts of river sand and gravel.

Let me say there is a big difference in concrete, and especially in concrete blocks. Turning the mixture over two or three times with a shovel is not mixing as concrete should be mixed. We have found that, by slinging and scattering each shovelful we could make the dry mix quite uniform by four times over, no less.

We made only about 100 blocks a day; but they were all thoroughly tamped. A fellow came by who boasted that he had made 200 a day, right along, and done his own mixing. We let him show us how quickly he could make one. He certainly did not take one-third the time we did, and the block looked all right; but an hour after he was gone I tried the blocks with my finger. Ours were firm and solid; but in the one he made I could easily make dents a quarter of an inch without causing any bulge around them. It is porous blocks of this kind, barely hanging together, that let so much water through and stay wet so long. It certainly is a mistake to build a permanent structure out of a lean mixture, half mixed and half tamped. It pays to do it right.

The house we put up is 16 x 20 ft., 1½-story. The lower floor is cement, with a very hard smooth finish, and there is also a cemented pit, 6 x 6 and 3 feet deep, in one corner, so we can set a can under the extractor.

There is a deck above this pit, which is 3 feet lower than the main upper floor, and serves as a landing for the turn of the stairs.

We used a total of 106 sacks of cement, costing us here $68.90; and the rest of the material—lumber, door, windows, shingles, hardware, etc., came to $52.70, or a total of $121.60 for the house as it stands, not including our labor, of which I kept no account. We did all the work ourselves, mostly at odd times. It is as near dust-proof as we could make it, the plates and end rafters being cemented on, and paper laid under the shingles.



The house cost $121.60, not including our own labor.

There is just one thing to be desired: It is hard work lugging the honey up out of

the pit around up the stairs. I shall soon have to have a larger extractor, and should like a honey-pump and a big tank upstairs with a pipe and faucet to draw off from below; and here's the problem: Contrary to Mr. Wilder, our early-gathered sweet-clover honey granulates (if anything) worse than the late-gathered crop. The first is generally granulated solid before I finish the last. If I let it go till I get a "big tank" full I shall certainly have to heat it some way.

I have thought of a steam coil or a double tank with space for circulating hot water between, but these would be expensive, and even then would not clear the draw-off pipe.

I shall appreciate any suggestions from those who have had experience in this line. "I've got to do sumpun."

North Platte, Neb.

BEE STINGING BEE LOSES STING

BY C. E. BARTHOLOMEW

This photograph will no doubt settle all controversy as to whether a bee loses its sting when used against another bee. While the writer, in company with Mr. Frank C. Pellett, State Bee Inspector of Iowa, was visiting the apiary of Mr. Tinsley, of Ames, Iowa, a swarm was observed leaving the hive. The three of us placed ourselves in front of the hive near the entrance to observe if possible the queen as she left the hive to go with the swarm. She came out on the alighting-board, but, frightened by our presence, no doubt, returned to the hive.

The swarm, not being accompanied by the queen, began returning; but before we had noticed the movement many of the bees, probably because we were standing there, began entering two adjacent hives. A small war ensued in which many of the bees lost their lives. A large number of the dead bees contained the sting of their opponents; and as Mr. Pellett had his camera with him we fortunately obtained this photograph.

Ames, Iowa.



Many of the dead bees contained the sting of their opponents.

THE NEW EXTRACTING APPARATUS

BY R. F. HOLTERMANN

We have had another season's experience with the twelve-frame honey-extractor, the honey-pump, the steam-heated honey-knife, and the wire-cloth bee-escape board.

Last year we had a very poor honey crop; but this year the crop was good enough to give everything a fair test. I am thoroughly satisfied with all. The steam-heated knives are a great help in uncapping. We have not lifted a pound of honey into our six-feet-high honey-tanks, and the twelve-frame honey-extractors with their friction pulleys are doing their work quickly and well. My son Glen removes a portion of the honey in one side of the comb, then reverses the reel and cleans that side, turning again and emptying the first side. The saving resulting from thorough extracting is no small item. So much for the inside work.

OUTSIDE.

When it comes to the outside the wire-cloth bee-escape board has simply revolutionized the work here. We carry one bee-brush for cases where there is brood in the supers; and this year in extracting four apiaries we came across one case where there was no brood in the super, and yet the bees did not pass out of it. These wire-cloth bee-escape boards are an unqualified success, and I say this without a moment's hesitation, knowing that there have been

some adverse reports. They will work wherever the solid bee-escape board will work. In speaking with Mr. James Armstrong, Cheapside, recently, a man who is well and favorably known as thorough in what he does, he said, "One must remember that, unless the bees are doing some work, they may remain contented in the super, and the escape be of no avail." People who report unfavorably on these escape-boards have certainly not been thorough in their work or are not conversant with the conditions under which bee-escape boards work, or else the bee-escapes themselves are not made right. This might easily be the case. If that were true, they would not work on any other board.

Brantford, Canada.

FEEDING SUGAR TO INDUCE QUEENS TO LAY LATE IN THE FALL

BY G. T. WHITTEN

By feeding two or three tablespoonfuls of sugar syrup or cheap honey a day to a colony after the honey-flow is over, or between the main and fall flow, I have found that the queen will continue to lay until late in the fall. This will keep the hive full of young bees at all times so they will be able to cover a large amount of brood and save it all. Double-walled hives should be used if possible. If single-walled hives are used they must be packed early.

A queen at any time of the year will regulate her laying to correspond with the amount of food which comes in. The amount of stores already in the hive has little if any effect on the queen's laying. I found that the egg-production depended on this in-coming food. This feeding should be regular, steady, and in small quantities, rather than in large quantities at one time.

I discovered that, by careful study of general conditions concerning the honey-flows, I could have all colonies strong at the right time. To have them well supplied with young bees late in fall gives strong colonies in spring.

When feeding bees in early spring or late fall, care must be taken, because they use up the food as soon as it is given them. Becoming excited they rush out to seek more food. It is often too cold for them to return, hence the danger is great in thus feeding, because many bees are lost. I close the entrance of the hive with a wire screen until the bees have settled down again.

The best way to do this feeding is to cover the top of the hive with a wire screen, then place an empty super on the hive, and feed over the cluster.

Take a glass jelly-tumbler. Punch four or five very small holes in the metal cover, and invert it over the frames on top of the screen. The cover of the hive may be removed, and the food may be placed in the super at any time without disturbing the bees or attracting robbers. After many experiments I have found this to be the safest and best method of stimulative feeding. If this method is followed carefully, each colony should be in condition to divide in spring early enough to build up to two, at least, for the honey-flow when it comes.

After a careful examination in the spring, those that are not building up in a satisfactory manner should be fed as suggested in this article.

Each colony should have not only sufficient stores of food for the winter, but "some more," for one cannot have too much food therein. The bees use the surplus to good advantage in the spring.

Hartford, Ct.

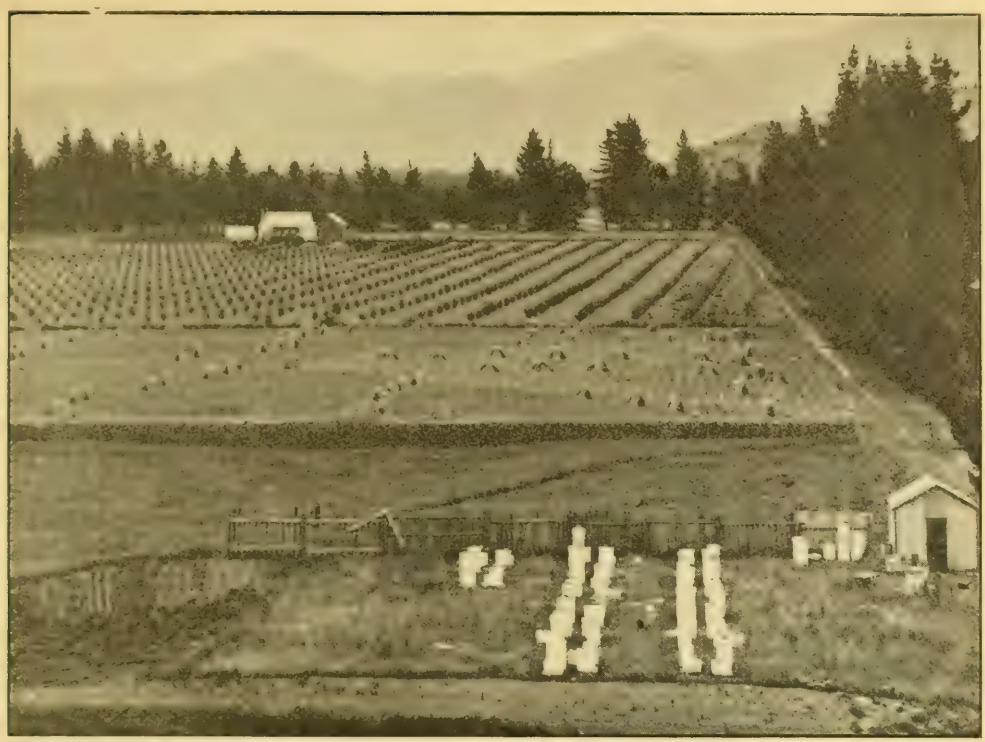
APPLES, CHERRIES, PEACHES, AND BEES

BY C. A. OLDMAN

My apiary of 56 colonies is situated in a rather ideal spot, being located on the end of a 16½-acre farm owned by my brother. He has 8½ acres in orchard, consisting of 775 apple, 175 cherry, and 50 peach trees.

The board fence shelters the northwest side, fir-trees the north, and a high hill (from which the photograph was taken) about 150 yards from the hives shelters the east side. The south side is somewhat exposed; but I have planted a hedge of flowering currants to provide shelter from this quarter.

This location is about three-quarters of a mile from my home, and I moved my apiary here at my brother's request. He wanted my bees to fertilize his fruit-bloom, and I wanted his fruit-bloom honey. Although, occasionally, when my brother is cultivating his farm near the bees, and my



A New Zealand apiary in an ideal spot.

hybrids get too fond of him, the air gets a bit blue, yet we are both well satisfied with the arrangement.

My hives are arranged in groups of four (similar to the plan in the A B C, but omitting the center hive. I prefer this arrangement to many others I have tried. The photograph was taken with the orchard for its objective; and, being taken from the end of the rows, it does not show the apiary to the best advantage.

My honey-house is 10 x 10 ft., made of corrugated iron, and is used only for extracting. All combs, honey, etc., are taken home after extracting. On the left a portion of my vegetable-garden is shown, and a creek runs right around the garden and in front of the apiary, but does not show in the picture. Between the apiary and the hill from which the photograph was taken there is about three acres of lucerne (sweet clover); just past the board fence is a crop of partridge peas; next mangolds; then oats in stack, and then the apple-orchard, with the peach-trees up next the house, and the cherry-orchard on the left side of the house. Another orchard of about three acres adjoins my brother's on the left of his cherries.

In the background are the Waiau River and distant mountains.

Waiau, N. Z.

EUROPEAN FOUL BROOD NOT FORMIDABLE TO THE EFFICIENT

BY J. E. CRANE

Mr. R. F. Holtermann says that for years he has promised that when European foul brood struck his bees he would throw up the sponge and walk out, leaving the outfit behind him. Well, if I am not surprised! One of our most prominent beekeepers ready to haul down his flag and run! He says further he may do it yet. I hope not. Most of our troubles seem greater at a distance than close at hand, and this is most certainly true of European foul brood.

The shiftless beekeeper may well regard this disease as a serious matter, if not an actual calamity, for it is almost sure to wipe out his "bee-ness" before he knows what is the matter; but for Mr. Holtermann

to run is unthinkable. Leave that for the careless.

I called on one such this very week. He had twenty-five colonies left, but I would not give a cent apiece for them to keep. The wax-worms had already destroyed the combs in a large number, and those left were fast reaching the stage when the worms will come into full possession. I advised him to treat the whole to the fumes of burning sulphur, strain out the honey in the old-fashioned way, and make the rest into beeswax.

There are others who have no trouble, although this disease is on every side of them. One extensive beekeeper even told me that it was a blessing in disguise, as it cleans out the small slipshod beekeepers and leaves the field all to himself.

If we are to fight this disease we must know its strong points as well as its weak ones, that we may fight intelligently. To begin with, European and American foul brood are as distinct from each other as two diseases well can be. I have had a better opportunity to study European foul brood this season than ever before. I find one of the most striking differences in the two diseases is in the rapidity with which it spreads. American foul brood may be in a hive for years, and yet the colony do a fair business, while with European foul brood it very quickly runs down. Not only does a colony run down quickly, but it spreads from hive to hive with great rapidity; hence the necessity that the beekeeper, where this disease exists, be able to recognize it at once and apply the remedy. If the colony is small it should, if badly infected, be broken up or disturbed at once. If of fair strength the queen should be removed, which will stop the spread of the disease in the hive, and after two or three weeks a young Italian queen introduced, or a virgin in a week or ten days.

Some time in June I called on a lad, perhaps thirteen years of age, who had the care of ten or twelve hives. I found two of them had European foul brood. I gave him the above directions, and when I called on him in August those colonies were as vigorous and healthy as one would care to see. I have seen other colonies this season clean up in the same way.

Now, here is a very curious thing: If we were to take a colony with American foul brood and cut out every cell of diseased brood it would be about as sure to come down again with disease as it is to live. That has been my experience, while with the other disease the hive may be half full of honey. If you give the bees a chance they will clean up and remain free from disease, with a new vigorous queen, provided the colony is of sufficient strength.

I am inclined to doubt Mr. Holtermann's theory that bees from diseased colonies carry the disease germs to flowers, and these bees from healthy colonies take the germs to their own hives, although I have no way to prove he is wrong. The past season a number of colonies were brought from a yard where there was some European foul brood last year. Several of these came down during the spring with European foul brood, and the disease spread in this home yard; but in nearly every case it spread to those nearest the diseased colony. Now, if the disease had spread by way of the flowers it would be as likely to appear in hives furthest from the ones that were diseased as those nearest; so I have come to think that the disease spreads largely or often by bees drifting from a diseased colony and entering, by mistake, a healthy hive.

Middlebury, Vt.

THE CURIOUS SEASON IN CENTRAL WISCONSIN

BY E. E. COLIEN

The beekeepers of central Wisconsin rejoice because of the realization of a bountiful crop of honey this past season, and the very promising prospect for another good harvest the coming year. The season just closed was most emphatically one replete with quick and striking changes of weather conditions that brought hope and almost despair in quick succession.

The heavy fruit-bloom of this section presaging a fine start in brood-rearing was cut short by a long spell of cool cloudy weather and heavy rains. This long-continued cool moist weather, however, started up the white clover, and oceans of bloom raised the beekeepers' spirits. But the spread of beautiful white had no nectar in it with its first appearance, when, presto! almost in the twinkling of an eye, with the coming of a spell of normal warm weather the floral kingdom seemed suddenly, as if by magic, filled with sweets. One of Wisconsin's best honey harvests was on.

The beekeeper who was ready, and supplied his colonies with supers, surely had "no kick coming" on account of a short



A. J. Knox's apiary in winter quarters. See page 905, Nov. 1.

crop this year. I took off over a ton of choice white-clover comb honey from forty colonies of bees, spring count, besides securing thirty colonies of increase.

Basswood, strange to say, had absolutely no nectar in its bloom here this year. But white clover, alsike, and sweet clover made up the deficiency. White clover was everywhere in evidence the entire summer, the bloom continuing all through September.

Besides a bountiful crop of surplus, the late clover bloom and other nectar-filled flora, coupled with desirable nectar-gathering weather, enabled the bees to fill the hives to their capacity with the best of wintering stores.

The late warm seasonable rains have put white clover in the best possible condition for wintering.

Manawa, Wis.

HOW FAR DO BEES FLY?

BY F. M. BALDWIN

This much-mooted question is often discussed by Mr. Clute and the writer. We are inclined to believe that the distance a bee will work from the hive is over-estimated. We were much interested by the light Mr. Clute's observations threw on the Florida bee. In other climes the bee may travel further afield; but down here she is not much given to long flights. But before I set down the observations let me say that it is not wise to deduce from this anything as to what bees will or will not do in other sections. These observations give light, if at all, on the Florida bee alone.

Reference was made above to the thirty colonies that stored mint honey. They are in the midst of square miles of mint, and seem to care only for mint. Less than a mile north of them is a vast stretch of smartweed. It comes in after mint is out of bloom. A flight of less than a mile would have put this yard to work on it, but no trace of that nectar is in the supers.

The fields of mint run south from this yard nearly three miles, and then give place to a vast area of smartweed. Three-fourths of a mile inside the line where this last plant begins and the mint ends is yard No. 2 of 142 hives. Here the supers were filled with smartweed honey but no trace of mint—only three-fourths of a mile, but no nectar gathered at that distance.

The third yard is south of Lake Jessup half a mile. Perhaps the lake is three-fourths of a mile wide here. That would make bees fly a mile and a quarter for the smartweed that abounds on its north bank. This yard is in an orange and tupelo section. There is plenty of honey from these in the hives, but none from smartweed.

A word to back this up from our experience in this county (Manatee). When I came to the county I stayed at Parish, a village set among orange-groves. I bought a few bees and transferred them from old box hives. I cut bee-trees in the woods, and transferred to the hives. I expected these bees to fill up on wild sunflower in October. There was a vast field of it a mile northeast of my yard. In the early fall it burst out into acres of gold, a thing of beauty and a joy to all. The flowers were full of nectar, thousands of pounds of it, but none got to my hives. So far as I was concerned these flowers were born to waste their sweetness on the desert air —dollars upon dollars' worth of honey, but I got none of it. So much for thinking that the Florida bee would gather sweets and bring them home if they were within a mile or two of the hive. Money was lost because of an error in judgment based upon the old belief that bees work a long way from home.



Winter case made of clapboard, siding, as used by A. J. Knox, Orono, Ont. See page 905, Nov. 1.

One more experience because it seems to bear upon this matter. Mr. Clute and I have bees in town, Palmetto. A mile north is the 450-acre grove of the Manatee Fruit Co. They keep bees to pollinate their fruit. It adds largely to their yield, but they are busy with other things and don't care to bother with the bees. They have turned them over to Mr. Clute who works them for half the profit. The big grove is full of Spanish needle, which last fall secreted lots of nectar. The hives in the grove were filled with honey. Our bees a mile away got very little of it. What little they got came, in my belief, from the weeds that are scattered here and there in small patches in the back yards of the town.

Please don't misunderstand. It is not the intention to show that bees never go a mile or more for nectar. But it is probable that they do not often do that. If my Florida observation is worth anything to me I must figure on the bees working over a radius of less than a mile; and that if I want my bees to get a full season I must be prepared to move them to stores that are a mile or more away. They will be just playing at gathering honey from scattered blooms here and there to no profit. If I'd move them a mile to where some plant is in full flower, play would quickly become work, and I'd greatly profit.

Bradentown, Fla.

THE COLORS OF WESTERN HONEY

BY M. H. TWEED

A little carelessness in heating honey, changing it from water-white sage to a dark tasteless article, set me thinking about the question of dark and white honey from alfalfa. I talked with a man who is an inspector in one of the counties of southern California, many years in the business, and who, I noticed, took a leading part in the convention at Los Angeles. His idea is that the muddy condition of the Colorado River water used for irrigating is the cause of the dark alfalfa in the Imperial Valley, and other points where water is taken from that river. I think he is mistaken, for I have seen at Rocky Ford, Col., the whitest of honey from alfalfa, and the water from the Arkansas flowing through the town in the irrigation ditches is almost thick with silt and vegetable matter.

Alfalfa honey from Utah or Colorado is invariably white. Now, why is it that honey from the same blossom in the great alfalfa valleys, Imperial, San Joaquin, and valleys of southern Arizona, is always

dark? I think it is the great heat, the continual sunshine, and the fact that no moisture either as rain or dew reaches the stalk of the growing alfalfa during its whole life; with the thermometer ranging from 90 to 120, without a cloud in sight all day and every day, is it not reasonable to suppose that the heat affects the color?

When I think of white honey my mind wanders over the northern and central states; but when I think of dark honey the scene changes; my mind's eye is on the southern states and the West India islands. There may be something in the soil. When a man tells me his cantaloupes are from Rocky Ford seed it means nothing to me; but when he says they are grown in Rocky Ford I become interested.

However, I suppose this question is about as hard to settle as the why and wherefore of granulated honey. The man who has had little experience with granulated honey is sure to know all about it; but the man with large experience reaches a point when he feels with a great sense of weariness that he is not sure he knows anything at all about it.

Pittsburg, Pa.

BEES AT THE PANAMA-CALIFORNIA EXPOSITION

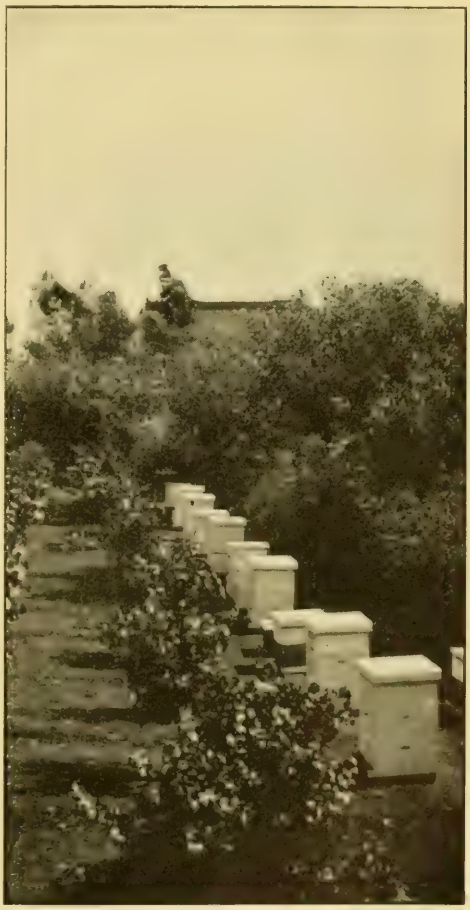
BY JOHN W. LOVE

Here were the orchards of Valencia oranges, the lemons, grapefruit, and the other citrus fruits, and rows of persimmons, nectarines, figs, olives—almost everything that could grow in southern California. On an afternoon at the San Diego Exposition I had strolled out under an archway through a formal garden, and suddenly found myself on the model farm, part of the exhibit of the southern California counties. Every agricultural industry of importance seemed to have been recognized, even to the English-walnut business. Surely there ought to be some bees, I thought.

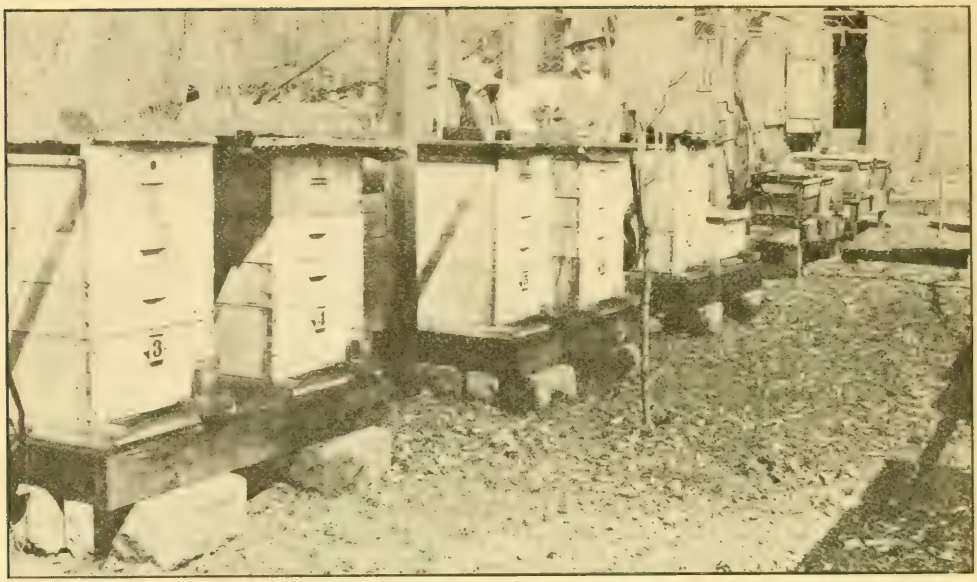
Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties together occupy the Southern California Building, and united to make one of the most popular features of the Exposition, the out-of-doors exhibit. On this model farm were the model poultry-yards, the model vineyard, and the model garage. I remember with what delight I lounged on the cool cushions in the bungalow and looked out of the open windows to the citrus groves. Indeed, it would be delightful to live in southern California.

Finally I found the bees. Ten hives of them, each with ten frames, made a row of white between the trellises of the vineyard. "Do they attract much attention! Why, so many people walked across this lawn just to get to the bees that we had to put up the fence, but any one who is interested can just step over it." The attendant let me step over.

Bees used for exhibition purposes never gather much honey, of course, and the output of this miniature apiary was not likely to rival the harvest over in Imperial Valley. They pasture mostly on sage on the slopes of the Cabrillo Canyon, the attendant explained, and on some of the flowers in the gardens of the Exposition.



One of the most popular of the exhibits at the model ranch.



I have had the fever for twenty-five years.

A SMALL BUT PROSPEROUS APIARY

BY JOHN J. LENERT

Twenty-five years ago, while I was looking at some bees owned by a friend, one of the pesky things stung me under the eye. From that time I had the bee fever. A short while after that my father purchased a colony for me, and I have been a small beekeeper ever since.

I have had as many as twenty colonies and as few as two. My bes. yield was 300 lbs. of comb honey from eight colonies. My best crop of extracted honey was 750 lbs. from seven colonies. One colony gave me twenty-seven full Langstroth frames in 1913. Last year I took off 200 lbs., but had to feed it all back again in the fall.

Elmwood Place, Ohio.

"WHAT IS IT—NOSEMA APIS, BEE PARALYSIS, OR WHAT?"

BY M. Y. CALCUTT

It is *Nosema apis*. There can be no doubt that the disease that has scourged the bees in this section of the country is nothing else than *Nosema apis*, otherwise known as the Isle of Wight disease. On August 28 I sent samples of both brood and bees to Dr. E. F. Phillips, in charge bee culture investigations, Washington, D. C., and received the following in response:

> No disease has been found in any of it. The comb consists of advanced pupæ and bees ready to emerge, and these do not seem to be at all affected. No cause for trouble has been found in the adult bees. E. F. PHILLIPS.

Before I received the above letter from Dr. Phillips I had a long talk with Prof. Trevoe Kincaid, and he informed me that he had discovered the germ that was causing all the trouble with our bees. After a careful examination with the microscope he had discovered and identified it as *Nosema apis*. The first few bees examined by him did not show the disease, or, to be more exact, he did not discover *Nosema apis*, because he was not looking in the right place. Once he had discovered the bacillus (in the alimentary canal) he had no trouble whatever in finding it thereafter. It would seem from this that Dr. Phillips in some manner must have overlooked *Nosema apis* in the sample that I had forwarded to him.

The sample adult bees were caged from those crawling in front of the hive, and placed in a queen-cage over night. Next morning all were dead.

At the time of writing you I had made up my mind that it was the dreaded Isle of Wight disesase. The bees did not act as they do when afflicted with the so-called paralysis. I cannot agree with some that the two diseases are identical. The bees are not swollen and elongated as in paralysis, except in very rare cases. Another strange feature of the disease with us is that it was not followed with dysentery—at least none of the hives examined by us showed it in any degree, although we had cases reported to us.

Now I sincerely trust that Mr. Herrod is wrong in his broad and sweeping statement (page 57, 1914), "Now, any one with the slightest experience of Isle of Wight disease knows that, once stock is attacked, it is doomed." If that statement is true then we shall not have a hive of bees that will survive the winter, for every hive in this section has been more or less afflicted. It is true they are still dying, but very slowly as compared to what they were in August and September.

In an article the editor says, "The presumption is that the peculiar season—cold, rainy, and wet—has had something to do with it." Let me say that this is the warmest season that we have experienced in the twenty-seven years that we have lived on the Sound. You further say, "We have never heard of *Nosema apis* in this country." Well, let it be hoped that it will never reach you.

It is my belief that we have a couple of hives that are immune t this disease—that is, very few bees have died in these hives. If that is so, then we can restock from them.

What you say regarding the brood as only neglected and starved brood may be so; but scales are left in the cells as in American foul brood. No odor arises, though, from the dead brood.

Seattle, Wash.

WAS IT REAL HONEY-DEW? AN INTERESTING INCIDENT

BY JAMES S. JOHNSON

On the 6th of September I was attracted to my apiary by an unusual roaring of the bees before sunrise. I found them storing honey very rapidly. There were handfuls of bees in front of each entrance; and as the sun came up they worked all the harder. As this was something unusual, there being no flora sufficient for such a flow, I began to wonder what the nectar could be coming from. I made a search, but could not find the source, so I decided that they were getting honey-dew, as I noticed some wasps, flies, and hornets on poplar.

The next morning the same thing occurred again, though even more pronounced than the day before. The bees were coming out of the hives just as though some one had kicked the side of the hive with his foot. I could still see a good many stars, and there was some fog, which made the bees act queerly; but as the light was better and the sun came up they became natural and went about their business with a rush.

In a short time the grass in front of the entrances was covered with laden bees. I caught one of them and pressed its side to make the bee disgorge itself, and the honey was water-white. I decided then that they were not getting honey-dew, and at once began another search. I finally found that they were working on what I call spotted-oak trees. These trees are the rough and scrubby oaks that grow high up on the hills. The bees were getting the nectar from the base of the buds. They did not work on all the buds, but on certain ones that were on stems about a quarter of an inch in length. I am not even sure that they were buds, but there is a small opening in the end that continuously secretes a clear sweet liquid. I don't know whether to call it nectar or sap, or what. Unless this could be called a blossom I suppose the liquid would hardly be nectar.

My bees are filling their combs full of this stuff; all the queens are laying, and brood-rearing is in rapid progress.

I am undecided as to whether this will make suitable winter stores. If they don't stop storing it the bees will soon have their hives full.

Langnau, Ky., Sept. 13.

[We sent the above very interesting letter to Dr. Phillips, who, in turn, handed it to the Forest Entomologist for attention. Mr. Hopkins' reply follows:

We have referred the specimens to our Specialist in Forest Hymenoptera, Mr. S. A. Rohwer, who states that on certain of the buds of the oaks sent there were galls of one of the gall-making Cynipids, probably referable to *Neuroterus versiculus* (Bassett). It is very probable that the sweet liquid that the bees collected is a secretion from this gall as there are a number of Cynipid galls of similar construction which are known to secrete a sweet liquid which attracts insects, especially ants, in great abundance. This is an extremely interesting and unusual record. A. D. HOPKINS,
Forest Entomologist.

Washington, D. C., Oct. 8.

THE MILKWEED OF BRITISH COLUMBIA

BY W. J. SHEPPARD

One of the best nectar-yielding wild flowers of British Columbia is milkwort, or, as it is locally termed, milkweed, on account of the milklike sap exuded when a portion of the plant is broken or injured. It is not an *Asclepias*, however, but belongs to the periwinkle family, its botanical name being *Apocynum hypericifolium*, so called owing to the similarity of foliage to the hypericum, or rose of Sharon.



The foliage is similar to that of the Rose of Sharon.

It grows from a foot and a half to two feet six inches high, and bears umbels of small bell-shaped flowers, white tinged with pink, which have a strong but fragrant perfume. It commences to bloom about the end of June, and stays in flower for several weeks, being continually visited by the bees. It is a perennial, and grows luxuriantly over nearly all this section of the province.



It bears umbels of small, bell-shaped flowers.

It seeds freely, the thin hanging pods when fully grown being about three inches long in clusters, reminding one somewhat of miniature dwarf beans. The pods when ripe burst and set free the white-bearded seeds similarly to the fireweed, which is also very abundant here. The honey is light in color, with a pleasant flavor, reminding one of the aroma of the flowers.

Nelson, B. C.

SUNDRY APHORISMS

BY ARTHUR C. MILLER

Don't have any weak colonies. Avoid them or eliminate them. The first is the better and the cheaper way.

So now it is aster honey which is to receive the blame for killing the bees in winter. Guess again. In this locality bees winter well on aster honey, but may die on sugar-syrup stores. That is not a fable. What is the answer? Worn-out bees. "Handling" a lot of sugar syrup or a lot of thin nectar late in the season ("late" means when clusters are contracting) puts too much labor on the bees, and "ages" them, and that late, particularly with old queens, there are no youngsters coming along to take their place. The solution here is young queens put in about August 20. Mr. Crane, please take notice.

If you must keep bees among the fruit-growers, do not put your hives *in* the orchards, but only near them—say horse-distance off. There are some two-legged horses which work in orchards who also object to bees at close quarters.

If fruit-growers practice spraying while trees or cover crops are in bloom they should know what will happen. No bees will be kept near them, and the wild bees will be killed off, and I guess it will be a good things for beekeepers. Oh for sundry reasons! [See article on page 994 by F. R. Beuhne in this issue. The only conclusion we can come to is that sometimes spraying with arsenate of lead while the trees are in bloom kills bees and sometimes it does not. The fact that it does sometimes, always makes the practice dangerous.—ED.]

Large black ants in this region live in hollow trees, decayed wood, walls of buildings (including chaff hives); and poison which they will take home and eat is the only way to reach them.

No, sir; this is not an easy place to winter bees—averages about as cold as central Ohio, and the changes and extremes are worse.

In considering winter cases, just remember that Quinby said a first-class colony will winter under almost any condition; but it is the second and third grade ones which call for care. Be a "first-class" beekeeper. It pays, and is a lot more fun. I've met some, and ought to know.

If you do not keep record of your apiary you should, and there are just two vital things worth noting—the queen, what she is, and the product of the stock. If you are doing up-to-the-minute, economical beekeeping there will be no other things to note. Isn't possible? Well, it just is. Have three hours to do ten hours' work, one mind to keep track of several important lines, and you will be forced to economical methods.

Piping antics of queens were described long ago, and the attitude and action is the same in the cell as out of it; that is, body flat, chin in, and muscles tense. "Piping" and "quahking" are one and of the same origin. Avoid it in your honey-producing stocks. [Dr. C. C. Miller will please note that the other Miller agrees with us; but say, you other Miller, why avoid queens that pipe and quahk?—ED.]

What a relief it is to have an Uncle Sam, leastwise when he turns a Phillips loose on a job! They are tackling the science of bee culture with the best of recording apparatus. I tried it with imperfect tools; and, though I learned much, I also learned that much of my work only suggested what was wanted. Go it, E. F. P.; you'll bust some of our pet notions, and put crimps in the apicultural reputations of some of us, but it will be worth while.

Many farmers do a losing business all their life. They live, but their farms grow steadily poorer. They do not show up so often in the mercantile reports, but they do a losing business nevertheless, and only because the soil cannot demand a settlement do they avoid a "failure." Beekeeping is a rather remarkable branch of agriculture, and has paid some fine profits; but it is fast getting down to brass tacks, and the men who do not run the business economically and far-sightedly will go under as surely and in the same ratio as in the rest of the business world.

When you are planning honey exhibits study color combinations. Patriotism is all right; but the flag is not the best combination of color to put beside honey. The blue against yellow (golden honey) is apt in some lighting to give a very unattractive green cast.

Producing is less than half of the problem, selling is the rest. Just study that.

Interesting, the difference in the size of stocks in warm forenoons and afternoons of April and early May. The forenoons then are a fine time to hunt up and clip queens. This for the novice particularly.

Providence, R. I.

FILTERING HONEY; NO NEED FOR WORRY

BY LUIS RAMIREZ CASABLANCA

In the last issue of GLEANINGS, and under the same heading it is said that the workers in the Federal Carbohydrate Laboratory in Washington have passed dark-colored honey through bone char, securing a product as clear as crystal, and that the only drawback to a general employment of this method of filtering is that the cost of bone char is about $60 a ton. This would not be the real drawback of the method, as the revivification of the bone char would solve the economic problem, as was long ago shown in the sugar-refineries. The real drawback of the process is that the bone char will absorb both the color and the delicate fragrance of the honey. It is well known that the very strong and offensive smell of the impure alcohol can be entirely eliminated by means of the absorbent bone char or of a good absorbent charcoal. Think what would become of the delicate fragrance of the honey under such energetic

treatment! We should certainly have "a product as clear as crystal," but as insipid, as unsavory as the simple syrup of our drugstores.

The workers in the Federal Carbohydrate Laboratory "looking now for a cheap wood charcoal which will take out the color" must look afterward for a cheap decolorizing charcoal which will not take out the sweet flavor of that substance collected by the bees from the flowers. But those who know the matter do not believe with the experimenters that they will soon find it. So, Mr. Editor, such honeys as the inferior tropical grades will never compete with the best white clover, sage, and alfalfa now in the market.

Toa Alta, Porto Rico.

AUSTRALIAN NOTES

BY F. R. BEUHNE

DENATURED SUGAR.

When I read GLEANINGS for April 15 I was forcibly reminded of the saying that you must go abroad to get news from home. I have been a beekeeper for thirty years, read all Australian bee-journals that were ever printed, have been connected with beekeepers' associations all along, yet I have never seen denatured sugar or heard or read anything about it or about a request to the general government.

As a matter of fact, there is very little sugar imported, the production of cane sugar being nearly sufficient for Australian consumption. Further, very little sugar indeed is used for bees, and as a rule only at the end of very abnormal seasons for the purpose of supplementing winter stores. In my own experience this has occurred only twice in thirty years.

That in some instances sugar might with advantage be employed for stimulative spring feeding is proved by experiments made during the past three seasons. Our sugar is from cane grown in the northern state of Queensland. There is but one beet-sugar factory (and that in Victoria), and its output is small—about 1000 tons per season. The enterprise is by no means a commercial success.

THE HONEY SEASON IN AUSTRALIA.

Owing to the almost unprecedented drouth experienced over the larger part of this continent during the season of 1914-'15, the total yield of honey is probably less than one-third of a normal crop, while the number of colonies has already declined considerably. The loss of stocks may amount to two-thirds by spring unless the winter, which is now on, proves exceptionally favorable.

The loss of stock is due less to a shortage of nectar than to an entire absence of pollen during the summer months. Breeding entirely ceased during long periods; and as a result colonies dwindled away, even where nectar was available in the blossoms or combs of honey in the hives. Many beekeepers were unaware of the total stoppage of brood-rearing till it was too late to apply the remedy of a pollen substitute; and some colonies gave out, even after some of the pollen-bearing eucalypts flowered in autumn, the old bees wearing out before enough young ones hatched from newly raised brood. Happily the drouth is now at an end, splendid rains having fallen lately.

In consequence of the small yield and the great demand for Australian honey for army contracts, prices have reached record heights, with 15 cents for extracted in bulk, and 40 cents for beeswax.

BEES AND THE SPRAYING OF FRUIT TREES.

Observations as to the effect on bees of the spraying of fruit-trees with poisonous compounds have now been made during four seasons at the experiment apiary connected with the Government School of Horticulture at Burnley, Victoria, and no harm whatever resulted to the bees or the brood. It is, therefore, very interesting to read, p. 306, April 15, that at least one other institution has arrived at the conclusion that spraying does not necessarily injure bees, even while done when the blossoms are open.

From the report on the Burnley observations, which was published in the *Journal of the Victorian Department of Agriculture*, May, 1914, I extract the following:

> At the Burnley apiary the hives are right under the fruit-trees, and at the time of spraying with Bordeaux mixture the ground had not yet been plowed so that the spray fell not only on any fruit-blossoms which were open, but also on the capeweed (a profuse pollen and nectar yielder), then abundantly in bloom. Neither the spraying with Bordeaux mixture nor the subsequent one with arsenate of lead had any effect whatever upon the bees. The colonies developed normally and without any check. There was not at any time dead brood in the hives.

Further, in response to repeatedly published requests, only two cases of alleged poisoning by spraying were reported in four years. One of these the writer investigated on the spot, and found that the bees

had died from starvation—not a drop of honey being present in the combs of the three colonies. In the other case the dead bees sent to the Department for analysis consisted of drones (without a worker bee among them), which had evidently been expelled from the hives owing to a dearth of nectar.

BEE PARALYSIS.

During my work as inspector I am frequently asked what paralysis is. The answer I give is: It is a name given to certain symptoms of distress. Major Shallard's article in GLEANINGS, Dec. 15, and your reply, Jan. 15, page 46, show that we have got no further than that yet. What I would call paralysis is the condition described by the editor in his reply to Mr. Shallard; but like symptoms are ascribed to the Isle of Wight disease, otherwise *Microsporidiosis* or *Nosema apis*. But you can find hundreds of colonies with the nosema parasite, and no symptoms; and any number of others with all the symptoms of paralysis but no nosema parasite in the bees. Then there is the petering-out of colonies through a cessation of brood-rearing in summer or autumn, or through shortlivedness caused by a deficiency of the nitrogenous food of the larvæ. This is called the disappearing disease, because as a rule you see few or no dead bees. They die normally. In the one instance the long break in the generations is the cause of extinction; in the other, the failure to live the alloted span of life; and quite often there is a combination of both.

Quite apart from the above there may be colonies in the same apiary that do have paralysis symptoms so the beekeeper calls the whole loss paralysis. If it happens in spring, and the bees show dysentery as a result of bad winter stores, that is also paralysis; and if losses occur without any symptoms it is still paralysis, only the symptoms have changed. It is a convenient name to cover a multitude of shortcomings of nature, and, occasionally, of man. All the same, rabbits and poison are not in it, for it occurs when there is no rabbit-poisoning, and often does not occur where there is.

Tooberac, Australia, May 31.

SOME FAMOUS HONEYS OF THE OLD WORLD

BY N. TOURNEUR

That delicious, fragrant, and nutritive matter—honey—is estimated according to the flowers from which the bees extract the sugar existing in the nectaries of the flowers. As certain flowers are more prevalent in particular countries the honey is designated by the name of the country in which it is produced.

The honey from the southern parts of France has held its reputation for generations. That from Narbonne is the most esteemed. It is produced from the flowers of the order of plants termed *Labiatae*, such as rosemary, sage, clary, lavender, mint, pennyroyal, basil, savory, thyme, marjoram, dittany, germander, and many others. All the labiate herbs are very aromatic, which accounts for the peculiar fragrance and flavor of Narbonne honey; and they are free from the principle which imparts to many other honeys an acrid and slightly pungent character. So particular are the Narbonne beekeepers in their choice of the flowers from which their bees collect the rich juices that not only have they the custom of growing choice plants, such as jessamine and mignonnette, around the hives, but at particular seasons the bees are carried in search of the labiate blossoms, the hives being transported by easy journeys from one part of the department to another, and made to rest several days, sometimes weeks, at the bases best calculated to improve the fragrance and quality of the honey.

Narbonne honey is celebrated over all Europe, and the French government gives every facility to foster bee culture throughout the department. Those who have once tasted Narbonne "virgin" honey, the real product, not that which unscrupulous traders sell as such, can never mistake it for any other. There is nothing to be found with the same peculiar fragrance. It is the sublimation of sweet odors and winey sunshine. Perfectly colorless when in its purest state, in warm weather it is like a clear syrup, limpid as the crystal stream. It is quite free from wax, and the common honey expressed from the comb contains very little.

The honey of Spain and Minorca is fine and fragrant, but inferior to that of Narbonne. In Italy there are several fine honeys, but they are not plentiful, though of the coarser kinds there is great abundance. One kind that is gathered by the Milanese, and in Switzerland and throughout the Apennines, is made great use of by Italians. It is produced from the fir, the pine, birch,



L. G. Saugier M. G. Dadant C. P. Dadant H. C. Dadant L. C. Dadant
DADANT & SONS. SEE EDITORIAL.

and other like trees, and consequently, in addition to being of a dark color, almost black, its taste is almost disagreeably rank and strong; yet with this honey the Italian cook prepares many very delicious dainties.

The honey of England as a whole is inferior to that of the south of Europe, both in hue and taste, and contains much more wax, though in districts where buckwheat is cultivated it is much better, the improvement arising from the flowers of that plant. One does not include in this, of course, certain noted tracts where certain flowers flourish especially.

But the honey of all honeys is found far a-sea. It is not the much-boasted and very inferior honey of Hymettus in Greece, but that obtained in the island of Bourbon, a dependency belonging to France, north of the Mauritius, in the Indian Ocean.

It as far surpasses Narbonne as Narbonne surpasses the other honeys of Europe. Its color is a light green; and owing to the heat of the climate it must be kept, owing to its liquidity, in black wine-bottles or in stone jars. It is not obtained from the domestic bee, but is found in the woods, in hollow trees, where it is deposited in such quantities that from three to four hundred pounds are often taken from the same trunk. Its extraordinary rare flavor arises from the great variety of aromatic flowers which fill the forests and sparse woodlands of Bourbon. The Mauritius, Rodrigues, and Reunion Islands, though also growing many varied nectars for the bee, do not produce this particular kind of honey—the green honey of Bourbon.

In flavor, a beautiful kind of honey found in Georgia, Asia Minor, comes close to the Bourbon, but it is of a different substance wholly. Deposited by the bees in the clefts of rock, it crystallizes and becomes hard. This honey is not viscid, but is like the white sugar-candy exported from China in its very finest and purest crystalline condition. If kept a long time, it takes on a yellow tinge. It is rich in saccharine, but contains no mucilage, and will, therefore, not ferment spontaneously. In Constantinople it is considered a great rarity, and by the natives of Persia it is considered to be the true nectar, giving sweetness and roundness of flavor to their favorite honeyed sherbet.

At the present time it is worthy of note that one of the finest honeys in Turkey is that produced by the bees from the aromatic labiates so abundant on the now blood-drenched peninsula of Gallipoli.

Rayleigh, Essex, England.

GIVE US SOME LIGHT

BY F. J. LEE

A year ago my daughter had thirteen colonies. When it came time to put the bees in the cellar (concrete walls and floor) for winter her husband wanted to darken the windows; but this being inconvenient, he took a half-depth super, bored a two-inch hole through both sides, and tacked some wire cloth over these holes, put it on a bottom-board, and with a piece of lath stopped the beeway entrance and set the hive on this and put them in the cellar—covers all on.

I was in the cellar several times during the winter, and once in February I could not detect a sound from them. I tapped the side of a hive, and the bees at once "telephoned" "We are all here." I could tell the time on a watch every day without artificial light.

About the first of April the bees began to buzz and try to get out; then the windows were darkened for a couple of weeks before the hives were taken from the cellar.

Every colony was alive and in fine order—very few dead bees on the bottom-boards. Just across the street I had six dead colonies out of eighty-five in a perfectly dark cellar. The young people have twenty hives this fall; and if they winter better than mine this winter I will turn on the light.

Lee Valley, Ont.

[The plan described above is very similar to the Hershiser method of wintering, described in these columns a few years ago. Mr. Hershiser, however, goes further, and has a much larger opening covered with wire cloth below the hive.

We tried the plan in our own cellar, but with rather disastrous results. With the bees in ideal condition, and the temperature and ventilation all that can be desired, the plan gives good success; but if conditions are not just exactly right the few bees that begin buzzing around on the wire cloth trying to get out raise such an uproar that the whole colony is likely to become uneasy. Is it not better to allow any old uneasy bees to get clear away from the hive rather than to have them confined where they can stir up the other bees?

Our correspondent had 85 colonies in his cellar, while the cellar described held only 13. Other things being equal, it is a more difficult matter to maintain an even temperature and quiet wintering when there are, say, 85 colonies in a room than when there are less than 20. Is it not probable that the 13 colonies wintered successfully in spite of the light and confinement rather than *because* of these conditions?—ED.]

MY FIRST YEAR'S EXPERIENCE IN BEE CULTURE

BY D. S. HUNT

First I want to mention a few incidents of my early childhood. When I was a small boy my father was a keeper of bees, but he kept them in box hives, and they were of the hybrid strain. They were very vicious, and possessed of an inclination to attack and sting any object that came too near them. It was hardly possible for me to come within ten feet of their hive without being chased away. During the severe winter of 1894 father lost every colony that he had with the exception of two or three, and he became so discouraged over the loss of the bees that he sold the remaining colonies to a neighbor the following spring for $1.50 per colony.

Now for my experience:

Last May I purchased a three-frame nucleus and tested golden Italian queen. As soon as they were placed in their new home they immediately began to work very vigorously, and up to July 15 they had increased so enormously in numbers that I decided I would do some artificial swarming. This was accomplished very nicely by placing four frames of the best brood that the mother hive contained in the newly made hive, together with the mother queen, leaving the original hive the duty of producing them a queen. This they did in due course of time. But a few days after I had divided my bees it began to rain, and kept it up for about two weeks, slowing up brood-rearing and honey-gathering. However, both colonies succeeded in obtaining some honey. In the meantime I placed a super with comb foundation in frames on top of the old colony, and they stored about fifteen pounds of honey in the super.

On August 28 I made an inspection of the two colonies, and, to my astonishment, found that there was no honey in either colony. So I got busy and supplied them with syrup made by dissolving granulated

sugar in water, the ratio being one part sugar to one of water; and I have been giving each colony half a gallon every other day by the Boardman-feeder process. At present, Sept. 10, they seem to be doing finely in rearing brood, pulling comb, and laying up stores.

Hiawatha, W. Va.

WINTERING ABOVE EMPTY COMBS

BY H. E. CROWTHER

The plan of wintering bees over extra combs of honey or empty combs has been practiced with good results by Messrs. Atwater, Coffin, and others for many years. The main consideration is to have the brood-nest heavy above, and the combs with some honey in them, underneath. This should be done when the bees are not hunting honey too strongly, for in large yards it has been known to start robbing. Also it should be done early enough to prevent loss of any bees in the fall.

A winter like that of 1914 in Idaho emphasizes the necessity of a solidly filled brood-nest, as the continued cold makes it impossible for the bees to move sidewise or downward to the honey. Many colonies starved outright with plenty of honey at the sides of the brood-nest, but out of reach of the cluster. The bees seem to be able to move down the length of the combs well enough; but when the back end of the hive is reached, it is quite a different proposition for them to get around the ends of the frames.

Wintering over empty or partly filled combs applies mostly to colonies run for extracted honey. In case of comb-honey production there are but few extra bodies of honey to be set under; but anyway, the plan is not as badly needed as with colonies run for extracted honey, for the reason that the comb-honey colonies are much heavier, due to the extra crowding that was necessary.

Great care should be used to keep the mice from eating the combs. We reduce the entrance to 5/16 of an inch. We are now using a great many unwired, shallow (six-inch) frames which are not so much of a loss if chewed a little, and are more easily replaced. We have been using them successfully in connection with eight-frame Langstroth bodies for comb honey. The idea is to winter with two of them for each brood-nest—one of them if full enough on top, and the other below. We leave the colony so arranged until stimulation is necessary in the spring. Then the two shallow supers are reversed, the honey going below and the empty combs above. This puts the bees up to the work of moving and working over the honey, and stimulates brood-rearing equal to or better than any other way I know. If any of the honey is candied, it is worked over, and there is no bother at extracting time, if any happens to be left in the combs. When comb-honey supers are needed, the shallows can be assembled on a few colonies to be extracted later, or used on others for wintering.

This plan was more fully explained by E. F. Atwater, p. 411, May 15, but it did not get the attention it deserved.

The longer we use these shallow extracting-frames the better we like them. In the extracting-yards we have gradually worked into them for several years back, and find them very nicely taking the place of the old deep supers. With them we need but few excluders, and that is an advantage, for I have come more and more to consider excluders quite a hindrance. (I refer to the old-style zinc and wood excluders.) The new wire excluders which we have been trying in yards where we still have a great many of the deep "queen-attracting" combs, seem to be a great improvement. I should think there would be no more demand for the old zinc pattern

Parma, Idaho.

Feeding Coal-oil Flavored Honey

I notice in GLEANINGS a query in regard to feeding bees honey tainted with coal-oil flavor. In 1867 my grocer had some coal-oil-flavored sugar. As I had bought sugar from him at times to feed my bees, he offered me this injured lot cheap. I fed some to a colony with no bad results. Then I took one of my Italian colonies, and put it in an empty hive full of frames. One frame was partly filled for bees to cluster on. I fed the bees about thirty-five pounds of sugar, 2 to 1, and then found the hive nearly full of nice white comb sealed over. The combs were full of syrup, and a good bit of brood was in the hive. This was late in the fall after all honeyflows had stopped. In the following winter this was the only colony I had that did not have dysentery. A good many others died.

The next spring, to satisfy my curiosity, I took a little of the comb left over and tasted it. It had the same coal-oil flavor. After fifty years of experience I would not hesitate a minute to use such coal-oil-flavored syrup.

Luton, Mo. JOHN M. MOHLER.

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Uncle Raspberry Flow, who lives up in Michigan, and who is always getting into arguments with his wife, says if his queen don't quit quahking all the time he's going to leave the old hive.

The Uniting of Weak Colonies; Why Does the Combination Dwindle?

It is pretty well known and admitted that the uniting of two or more weak colonies for the purpose of making a strong colony is practically useless, and results in no lasting benefit. In a few days the combination colony is left with no larger population than before.

After diligent search of modern authorities I have been surprised to find but slight mention and no explanation of this great loss of bees. It would appear that knowledge of the *fact* is deemed sufficient, and a knowledge of the *reason* as of little importance.

Is it not a fact, that a weak colony is always composed of mostly old bees—that is to say, a colony which is weak from natural causes and not from accident or human agency? If such is the case we need not look much further for the cause of rapid dwindling after uniting. A large family of old bees becoming enthused by their sudden increase of force loses many from the excitement, but goes to work vigorously and beyond its strength and age, the effect being to exhaust quickly the vitality of the oldest of the old bees, which then fall by the wayside in greater numbers; whereas, if no uniting had been done the weak colonies would have dragged along quietly for a longer period, only to succumb finally.

As suggested, if "old bees" *is* the reason (as appears to me entirely logical) then the condition is such that there is no remedy when the uniting is done solely for the purpose of utilizing weak colonies with the idea of making one good one in place of several poor ones, and the futility of the plan is self-evident. There is, however, some satisfaction in knowing why a thing succeeds or fails.

New Jersey. B. KEEP.

[It sometimes happens that, when it seems desirable to unite, the bees of the weak colony are old, weak, worn-out ones, just as you say. This condition may apply in the spring as well as in the fall. Uniting in either case will not result in much good, and therefore your explanation is quite plausible, and possibly may be the true one.

Very often, however, colonies are united in the same apiary, made up of young and vigorous bees; but the loss is occasioned by these young bees going back to their old stands and becoming lost, or else they find their way in near-by hives. Uniting, however, can generally be practiced to very good advantage, if the bees are not too old, by uniting two colonies side by side, or taking the nuclei from an outyard and uniting them after they are brought home, as explained in the reply to Mr. Stratton, in this department. In either case, if the bees are not too old, a fairly good colony will be formed, in good shape for winter. We have been doing considerable of this outyard uniting and neighbor-hive uniting, and the results have been very satisfactory this fall. Moreover, there has been no diminution of the strength of the united colony as there has been sometimes.—ED.]

Uniting and Feeding; Is It Too Late?

I should be glad to have your advice as to the relative advantages of uniting or feeding weak colonies at this season in this section. Owing to a cold spell when the asters were in bloom, or from some other cause, brood-rearing stopped early, and bees are short of winter stores. Many beekeepers are facing the alternative of feeding or doubling up, and, no doubt, will be interested in your answer.

I will say that the aster is our main dependence for winter supplies, and we have no trouble in wintering on summer stands. C. L. STRATTON.

East Chattanooga, Tenn., Nov. 12.

[You speak of the alternative of uniting or feeding. We know of no reason why you should not do both. If the colony is weak it ought to be united; and then if it has insufficient stores the combination should be fed. Of course there are various ways of uniting. To pick up weak nuclei from several different places in an apiary, and combine them together in one place, is not satisfactory, on account of the many returning bees. The usual plan is to take two colonies side by side. Remove one hive, and then place the other hive in the space between the other two. Put the two colonies together, preferably on a cool morning or evening, and then let them gradually unite when it warms up the next day. If there is no choice of queens, let the bees make their own. Of course if one queen is better than another the operator should kill the inferior one and unite.

It sometimes happens that there will be a medium-sized colony and a weak one side by side. Remove the hive containing the weak one entirely, and put the weak one with the strong one or the medium-sized one, and the uniting will be accomplished very satisfactorily. When colonies are at outyards, and it is expected to move the outvard to the home yard for wintering, the uniting can be very easily accomplished by placing two, three, or four weak nuclei together and uniting at the new location.

In the matter of feeding, if the weather has turned so that it is cool during the day, especially cool nights, the syrup should be given hot—about two

parts sugar to one of water by measure or weight. But the syrup should be thoroughly stirred so that it will be all dissolved before giving to the bees. The aster stores would do no harm in any case, providing the syrup were stored on top of the aster. Of course it is always desirable to do the uniting early in the season and feeding early if possible. But even when early feeding is practiced, a final feed sometimes becomes necessary if brood-rearing sets in between the time of feeding and the final packing in the fall.—ED.]

Compensation on a Contingent Basis; Number of Colonies Needed per Acre in Citrus-groves to Pollinate the Blossoms

Mr. Root:—I should be grateful for your opinion on the following. Mr. A owns some hundreds of acres of citrus and deciduous orchards in two groups sixty miles apart. He wishes to develop apiaries for the primary purpose of pollination, but with a view to having them profitable in themselves. These are to be developed from a beginning of thirty colonies to take care of pollination as the young trees come into bearing. B has been secured to take complete charge of this apiary development, and control policies and methods of development. A pays B $1.00 a year per colony (spring count) for management, $1.00 per colony increase, and 50 cts. per hour for actual labor in apiary and office. A, of course, pays all expenses of labor, equipment, etc. If this arrangement is unfair to either party, please state what changes you would suggest, and also any better basis for agreement.

Please inform me as to the ratio of colonies of bees to acres of deciduous orchards to secure thorough pollination to secure the maximum honey yield.

Glenn, Cal., Oct. 19. PAUL J. DAVIS.

[It is rather difficult to give a detailed answer to a proposition of this sort. Perhaps the plan proposed of compensating B is fair; but a surer and a better way would be to pay him so much a day for the time actually employed. These contingent schemes of compensating an employe sometimes work out well, but more often they cause dissatisfaction, not to say quarrels, between the parties.

We usually estimate about one colony to the acre for apple-orchards as being sufficient to pollinate when weather conditions are at all favorable. When the weather is bad during the time of bloom, more colonies are needed, as practically all the work of mingling the pollen may have to be done inside of an hour. In citrus groves, one-fifth or perhaps one-tenth of the number of bees required in an apple-orchard would be sufficient. The reason of this is, because the weather conditions are more favorable in orange, lemon, and grapefruit groves, and because, further, the blossoms do not all come out at one time. This enables a smaller number of bees to do the work because the time for doing the work is greatly extended.—ED.]

How to Get in the Game

A correspondent says that he is investigating the bee business with a view of starting an apiary, and he asks how much land is needed for five or six hundred colonies, and what would be most suitable.

I have written him that unless he is experienced in the bee business it would be a great mistake to start with as many colonies as he suggests. One must "grow" into the business, so to speak, so that the errors made while learning will not be so expensive. I began with four colonies, and was five years building up to one hundred stands. The mismanagement and mistakes made with those four colonies would cost me a pile of money if I should do now what I did in the beginning, and would utterly discourage a beginner.

One acre of land would be sufficient for yarding 600 or more colonies; but in the Mississippi Valley states it is seldom that more than 100 colonies are kept in any one place. An apiarist running a great number of colonies has them scattered through several yards so as not to overstock any one locality. In selecting a site for an apiary I should prefer it near some habitation on a bluff or hill land overlooking a wide area of river bottom or swamp. Such a location has an abundance of honey-yielding flora, and does not suffer from drouth.

Washington, Ind. S. H. BURTON.

How Fast Does It Go?

How many revolutions per minute should a honey-extractor make?

Nelson, B. C. GEORGE FLEMING.

[There is no definite speed that can be given as proper for a honey-extractor, for it depends upon the condition of the comb. The reel should turn as fast as it is possible to turn it without having some of the combs broken by the centrifugal force. The older the combs and the tougher they are by reason of the layer of cocoons in case of combs used for brood-rearing, the faster the reel can turn without danger of comb-breakage.

New combs which are much more fragile must be turned very slowly until the bulk of the honey is out of one side, then the pockets reversed and the reel again turned slowly until the bulk of the honey is out of the other side. There is little danger, then, in speeding up to throw out the rest of the honey on the second side. The pockets should finally be reversed to the first side, and the reel again speeded up to throw out the rest of the honey on that side. With the older, tougher combs, this added precaution is not necessary.

An eight-frame power extractor should have a reel speed of 250 revolutions per minute on the average. The smaller extractors require a greater speed.—ED.]

Virginia Bees Almost Down and Out

My bees gathered more honey in the spring than for five years before. They filled up the supers from locust bloom and white clover, and until the middle of July did very well. Since that time they have not made their own living.

We had so much rainy weather the latter part of August and early September that the bees got no benefit from the fall flowers. There were only two or three days in September that they worked on aster—our only fall flow here. As soon as the weather cleared, a frost killed everything.

I took two supers of honey off some of my hives, and found some of the colonies on the point of starvation. I have not a single colony with enough stores to carry it through the winter without feeding.

Ninety per cent of the bees in this section will die if they are not fed. June and July swarms made no honey at all, and it is the first time in several years that I failed to see some brood-rearing. If they can be wintered at all, bees will be very weak in spring. Several have lost colonies already.

Roanoke, Va., Nov. 12. HENRY S. BOHON.

Jackknife for Scraping Sections

I use a large-sized jack-knife kept very sharp for scraping sections. I have tried caseknives and butcher-knives, both dull and sharp, but like the jack-knife best. I have never tried sandpaper.

Aitkin, Minn. WILLIAM CRAIG.

A Correction

In the Nov. 1st issue, page 894, the description of my wheelbarrow should have given the length as 6 feet instead of 6 inches.

Heber, Cal. JOSEPH GRAY.

A. I. Root

OUR HOMES

Editor

And God said, Let there be light: and there was light.—GEN. 1:3.

And God saw the light, that it was good; and God divided the light from the darkness.—GEN. 1:4.

And God made two great lights; the greater light to rule the day, and the lesser light to rule the night: he made the stars also.—GEN. 1:16.

And God set them in the firmament of the heaven to give light upon the earth.—GEN. 1:17.

A few days ago a man who has been for many years editor of our *Medina Gazette*, and a man much loved and respected in quite a region round about Medina, said to me something like this:

"Mr. Root, some day I am coming down to see you to learn, if I can, why it is that you, a man of *seventy-five*, should seem to be right in the prime of life, when I at *forty-five* seem to be just about played out."

I knew he had sold his publication and given up the splendid work he had been doing for years; and I had also been told that it was on account of ill health; and I have been planning to see what helpful advice I can give him. By the way, it occurs to me he said something about my "secret" of deferring old age. God knows I have no secret in regard to health or any thing else in this whole wide world, that I am not willing to give freely to any or all.

I think I have lately been showing briefly, not only here on these pages, but by word of mouth, that the great secret, if there is any, is outdoor air and God's bright sunshine. Before going further let me give you one of the kind letters that keep coming day by day. I suspect it was written by a woman; but as the writer does not want name given we cannot very well find out, and it does not matter much, any way. Now listen and be ready for a big hearty amen when you get through.

"SUNSHINE" AS WELL AS "FRESH AIR"—A NEW(?) DISCOVERY.

I have been reading your Home talks for several years with great interest; and after reading your Home talk on fresh air to breathe, for both humans and the little chicks, I was moved to write to you and tell you of my discovery, and that is—sunshine for the babies. We have a little one in our home, just three months old: and since the time he was about two weeks old he has had his sun bath daily not with the sun shining on his clothing, but on his bare skin. He has never been sick, and has made a steady gain of 2¼ lbs. a month, which is extraordinary, so far as I can find out.

Well, you ought to see how happy the little fellow is when lying naked in the sunshine. He laughs and crows and kicks, and shows in every way he can his extreme delight. His skin is as brown as a Mexican, and his flesh as firm as a working-man's. He sleeps all night, and has never given us any trouble in the way babies usually do, and we think the sunshine does it.

I am not writing this for publication. I want to ask you just to take up the subject of sunshine, and give us a talk on that, as you have so well done on the subject of pure air. Think of it! all the little calves, colts, lambs, and pigs can enjoy the sunshine while the poor babies are deprived of it. You have, no doubt, noticed how the little animals enjoy the sunshine; and do you believe one of them could be raised without it, or, when exposed to it, be covered up with blankets? They would be as worthless as plants raised in the shade. I could also mention that sunshine is the best mold and germ killer, and many other points. Sunshine for the babies, and grown folks too—not on the clothing but on the bare skin.

Fillmore, Cal., March 22. W. C. G.

God bless the babies. (See "The right to be born sober," p. 867, Oct. 15.) If they have not a right to everything good in this world, who has a right? It rejoices my heart to see that, day by day, we are giving babies more thought and time than ever before. By the way, I wish my good friend would send us a picture of that "sunshine baby." The letter only emphasizes and calls attention again to what I have long had in mind. Outdoor air and sunshine are God's *two* great remedies. I would add, also, plenty of pure water—the purest that can be had. As for myself, I am quite sure that boiled rain water is best for me. Of course, I want it moderately cold. Next I would say good wholesome food—not too great a variety; nothing *at all* later than, say, four or five in the afternoon.* I think the above advice is needed, *especially* by elderly people; and after the things mentioned we want plenty of good sleep† uninterrupted

* In reading over the above after it was in type, it occurs to me I have not put sufficient emphasis on sleep, especially if I preach what I practice instead of "practicing what I preach." When I am doing severe office work, say several hours in the forenoon, or even hard work in the garden, I often find myself "used up." Then I go and take a nap. When things are crowding I have two naps a day, and in extreme cases as many as three. Just of late I have been called a good deal to give talks at Sunday-school conventions, etc.; and I have tried to get over home and get down into my "sun parlor" and get twenty or thirty minutes of sleep before I give my talk. I often tell Mrs. Root something like this: "Sue, I am to talk before a convention at two o'clock. I am now going to take a nap, and you must be sure to call me at ten minutes before two." With my little electric I can easily get up to the church in ten minutes. Then I will be ready to do my best.

Yesterday, Oct. 17, I was called to address a Sunday-school convention; but there was a crowded church, and several speakers were before me. So I had to sit and wait an hour and a half before I was called to speak. The consequence was, I was so tired of sitting still that I lost about half of my vim and enthusiasm. Perhaps it is not possible for every person to recuperate as I do by a little sleep; but to me the sleep is like recharging a "storage battery."

† Of course the above refers to grown-up or elderly people. Nobody would think of advising that a *baby*, or even children or young people, should conform to the habits of full-grown people. Babies must be fed like little chickens, at short

by disturbance in the digestive apparatus. Let the last meal of the day be early in the afternoon, and let it be something easy of digestion—fruit, for instance. Nice luscious peaches have been my last meal for several weeks past; and with the fruit, as I have several times mentioned, I have a little nice cheese, which I prefer to be old and well ripened. But unless I eat this sparingly there is a cheesy taste left in my mouth when I wake up in the morning. I have also mentioned cottage cheese. The "sanatogen" which we see advertised has, perhaps, done *some* good in calling our attention to the wholesomeness of cottage cheese. Well, the cottage cheese digests perfectly, and leaves no bad taste in my mouth, and is, I feel sure, one of the best and most wholesome foods in the world for babies when they are old enough to eat it, and for old people, and for anybody, in fact. Cottage cheese is now on the market for only 10 cts. per lb., or less than half the price of the regular cheese.

There is one thing more to be added to the sunshine, fresh air, and food and drink, and that is *exercise*. Children will, as a rule, take the proper amount of exercise if they have a chance; and let us each and all, *for Heaven's sake,* provide a place where they can have good air and sunshine. A few days ago Mrs. Root asked me if I heard the shouting and laughing over on the hillside back of our house. What do you suppose I saw when I went out there? Four little girls—Helen, Jean, Katherine, and Elizabeth, were riding downhill in two little wagons. As they have not learned to steer very well, the wagon was usually upset by the time they reached the bottom of the little hill; and then there was a scrambling and kicking of legs and arms (pretty much bare) in the sunshine on that south hillside. As it is covered with soft grass they did not seem to get hurt.

One reason why I so much enjoy going down to Florida is because down there I can dispense with a large part of my clothing and take vigorous exercise right out in the sun. A few years ago a lot of my friends laughed at me because of my fur cap. I have not only dispensed with that fur cap, but I have been getting lighter and lighter caps for the past two years; and when the weather is warm, and most people are complaining of the hot day, I just feel real happy without any cap at all; and I work in the garden bareheaded hour after hour. I have found it an excellent plan, also, to get off my coat and vest; and with the ventilated shoes that I have described I just feel fine; and when off alone I can sing praises to God for having given me 76 years of life already. Much has been said about the health of the colored children. Many of them would go next to naked if nobody complained. Down in Cuba I saw children *going to school* without a rag of any sort on them—bare hands, bare head, and everything bare from head to foot, both boys and girls. I think there was a protest being made at the time I was there. Just think of the indignity the northern-raised schoolma'am would suffer on being obliged to teach school where boys and girls are sent to learn their A B C's, without clothing! Very likely all of that is done away with by this time; but is it not true, dear friends, that the tough and hardy endurance of the colored race is largely due to the abundance of outdoor air and sunshine on almost every portion of their bodies?

When I spent a part of one *summer* in Florida one of the things I greatly enjoyed was working in the garden in my nightdress. If you have never tried it you can scarcely imagine the delightful sensation of a cooling breeze right on the naked body when you have had exercise enough to feel a little hot and sweaty. The modern style of dress for young girls and women, even though it is objectionable, and may sometimes have been carried to extremes, is, I honestly believe, going to give better health to the young mothers or to the growing girls who expect to be mothers in due time. May God help us to hold fast to the sensible, reasonable freaks of fashion, and to reject and protest against everything that is unhealthful and unreasonable.

I have not said very much about physical exercise in the above, although I have several times alluded to the big advertisements in the line of athletic schools. There are many such schools being started just now which ought to teach people by experience, and sometimes *sad* experience, to beware of some of these pickpockets. Beware of anything or of anybody who first wants $50 or $25 for a course of athletics; and if you do not "bite" the first time, as the weeks go by they keep coming down a little. When you are finally offered the same thing for $5 or even $3, you may think you are in luck; but you will find what you have paid for is something already taught in our schools or in our health publications. If it is true, however, that

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intervals. I think Mrs. Root used to give her babies some warm milk one or two times during the night. Of course they had less as they grew older, and the five little Roots are all alive—yes, very much alive and kicking around, even if some of them *are* over fifty.

you *go through* with your athletics just because the course has cost you $5 or $10 when you would not otherwise, it may not be so *very* bad an investment after all. Now, then, whether I am here in Medina with a comfortably fitted-up bathroom, or down in Florida in our comparatively cheap cottage, I bathe all over every day of my life; but before taking my bath I swing my arms and exercise my legs and rub my body all over until I am so well warmed up that I can take a bath without wanting it warmed, even if the temperature of the room should be down to 60 or lower. When th weather is cool I prefer to have the water warmed by some means up to 60 or 70. After bathing I use for a towel a good large piece of cheap cotton cloth, something perhaps half the size of a bed sheet. I take hold of the opposite corners and draw it back and forth across my back, and "see-saw" across my chest, around my legs, over my head, until every part of my body is warmed up by the friction, and by rubbing around my neck, my head, and about my ears, as I have explained before. If I were going to have another bath-room I would have a bay-window toward the south or southeast or both; and when we have long days I could take my bath and get a sun bath at the same time; for I feel perfectly sure that there is *nothing better in the world,* for an ailing person, than to let the sun strike directly on every portion of the body.

You know I am studying and enjoying seeing plants grow, perhaps as I never did before; and before I got this letter I was coming to the conclusion that sunlight is one of the greatest and most important things for plant growth. We have a row of evergreens for a windbreak on one side of our garden. I thought at first the roots of the evergreens had spoiled that side of our garden. No matter how much manure or fertilizer I applied, the plants would not grow there. Melons will not thrive and ripen, because they do not get the afternoon sunshine. All kinds of plants and flowers up near a high fence or building turn their heads away from the building. Sunflowers especially follow the sun. They turn around in the night so they can see the sun when it comes up. Then they look at him, as a rule, in the face all day long, and at night they are peeping and stretching their necks to get the last glimpse of his declining face. Nothing grows around a big thrifty tree. It is not alone a lack of moisture because the roots of the tree take it, for this year there was moisture to spare from spring till fall; but nothing thrives in the shade of a tree—that is, almost nothing. We have a few plants, it is true, like the ferns and mosses, that cannot bear the full light of the noonday sun, but they are an exception. The same thing applies to animals. See the chickens, how they flop their wings and run in pure enjoyment and delight when they are let loose in the sunshine. Every little while I see somebody trying to raise chickens indoors, sometimes by artificial heat, when the chicks would be a *thousand times* better off right outdoors; and the same thing is true with humanity. Babies and old people must have sunlight as well as fresh air. I suspect one reason why so many people get well by going to Florida is because there is more sunshine there than almost anywhere else. Some years ago the editor of a paper in Tampa said his periodical would be sent free of charge every day the sun did not shine there. Last winter, however, was such an exception that, if he keeps it up, he will have a tough job on his hands. People have mistaken notions about sunshine. Nobody supposes you can stand it to sit right down in the hot sun. Get out and work at something. Stir around and "do good" until the sweat drops from the end of your nose; then you will forget all about its being a hot day, and throw off your useless under-clothing and get a sun bath, as our good friend expressed it about the babies. Then you can thank God for fresh air and for the sunshine, even if the mercury is up to 100 in the shade.

May God bless this message; and may it be the means of giving health and happiness to a crowd of people; and when you have gotten both health and happiness, do not forget to thank God who gives us the sunlight, and—"God saw the light, that *it was good.*"

BEE CULTURE IN SOUTHWEST FLORIDA.

On page 685, August 1, our good friend F. M. Baldwin gives us an article which I feared was giving almost too bright a prospect for starting bee culture in Florida, after taking into consideration seasons in general. Below is a report for 1915 from our good friend Ault, who *last* season managed to get pretty close to 200 lbs. per colony. You will notice by reading the article carefully that while some locations give a fair yield, another apiary only a few miles away furnished almost no surplus.

THE HONEY CROP IN SOUTH FLORIDA.

While I am not in position to give definite statistics of the honey crop in this section of Florida I do not think it will reach above 20 per cent normal. As is common in "off" seasons, the honey flow has varied greatly in different localities. Mr.

Felts, of Palmo Sola, reports a much better yield than last year. With this exception all the reports reaching me have been unfavorable, and I do not think the average yield will reach over 40 per cent of last season.

Some of my apiaries have yielded an average of 40 lbs. per colony; and one apiary averaged 75 lbs. One gave an average of 10 lbs., and my home apiary of 40 colonies has yielded no surplus. In most of my apiaries the bees are well provisioned and strong; and I hope, after the fall flow, to make a better report.

People often remark to me that the bees must be "making" a lot of honey, and then they will tell of seeing bees working on some flower. At the same time, the bees were probably consuming more honey than they were gathering.

The honey-flow from black mangrove was short, though the bloom was profuse.

Coming in an unusually dry time the quality of the mangrove honey was the finest I have yet taken.

June 30 I visited my bees on Anna Maria Key, going by launch from the town of Cortez.

For some reason unknown to me the mangrove on Anna Maria was just coming into bloom, while across the channel to the east on the mainland, and also on the island of Pereka, it was in full bloom.

Coming home in the afternoon I was surprised to see large numbers of honey-laden bees crossing the channel in the direction of my apiary. Some of the bees were crossing diagonally, where the distance across the water was not less than 1½ miles. We saw only the laden bees flying toward the hives. I suppose the outgoing bees flew higher and more swiftly, and so we did not see them.

FETERITA IN FLORIDA.

The first heads of my feterita were heavy with seed, but the heads that put out later had but little grain. The plant produces a quantity of good feed; and where I cut the old growth the sprouts from the roots are four feet high, and growing fast. The worst drawback to its cultivation here are the birds, which come by the hundreds and devour it. The blackbirds and quail are the worst.

My feterita has attracted a great deal of attention, and many have expressed a desire for seed. We have recently been blessed with some showers, and farmers are getting busy.

LATER.—HOW FAR MAY BEES FLY ACROSS THE WATER?

A few days ago I wrote you enclosing a brief statement of conditions here, and told of the flight of bees across the channel separating Anna Maria Key on the one side and Palma Sola peninsula and Cortez Point on the other side, with the island of Pereka between. To make sure I was well within bounds I stated that some of the bees flew 1½ miles across the channel. Yesterday we again made the trip from Cortez to my apiary on Anna Maria, 3½ miles distant. On inquiry I found that the distance across the channel to the main land was about two miles. Diagonally across the channel to the island of Pereka and to Cortez Point, from which, at the time stated, large numbers of home-coming bees were crossing, the distance is all of 2½ miles. The bees were flying slowly, and close to the water.

This was of interest to me as showing the distance bees fly across water when conditions are favorable.

ARTHUR E. AULT.

Bradentown, Fla., Sept. 19.

HIGH-PRESSURE GARDENING

THE HELIANTHUS AND THE JERUSALEM ARTICHOKE.

The friends may recall that last year I grew four or five hills of the helianthus, and pronounced it excellent food. I supposed, however, that I had dug up all the tubers before going away; and I mentioned that one of the objections was that they were so small it was troublesome to harvest them, especially in clay soil. Well, when we got back to our Medina home, about the first of May, there was a wilderness of helianti a foot high or more, right where I dug them last year. I let them grow, and now we have a great crop. At one end of the helianthus-patch there were some stalks that looked a little different from the others. In fact, they grew six or eight feet high. I did not know any artichokes were planted there; but these grew three or four great big stalks, and produced regular old-fashioned artichokes. Now, we have cooked both the helianthus and the artichokes. We just boiled and served them as we would serve creamed potatoes, and, once more, I cannot see any difference in taste; but the artichokes are so much less trouble to prepare for the table we greatly prefer them. Just one thing more:

Both artichokes and the helianti produce a great lot of green tops before anything else. Both winter over, and are ready to start the first thing in the spring. If this young and tender foliage will be eaten by stock, why is it not profitable to grow for feed? I am sorry I did not think to offer it to the cows, pigs, and chickens. If the tops prove valuable, the helianthus might be preferable, because the small tubers will go so much further in planting. If artichokes are really a substitute for potatoes, or I might almost say *better* than potatoes, I do not see why they have been so long neglected as an article of food.

The letter below touches on the whole thing. Very likely locality *will* have something to do with it.

Mr. A. I. Root:—I wonder if the old Jerusalem artichoke and helianti are not one and the same vegetable. When I was a boy, 60 years ago, we lived in the south part of Erie County, Pa. One of our neighbors grew artichokes quite extensively, and cooked and ate them as we did Irish potatoes. They grew as large as other potatoes, and yielded fully as well. In the 80's I lived on a city lot in St. Joseph, Mo., and planted artichokes in my back yard, and they grew fine, being very productive, and made a splendid salad; but I did not like them cooked. In 1904 I moved to Madison County, Mo. There I got some artichokes from a neighbor. They

did not grow larger than peanuts, and were no good. Was it location or a different variety?

Boicourt, Kan. D. U. ANDERSON.

SWEET CLOVER IN NORTH DAKOTA.

In looking over the agricultural journals of late I have several times said to the men of our firm, "Here is something about sweet clover that breaks the record of anything heretofore." Well, just now from that new monthly, *The National Alfalfa Journal*, I clip the following. Read it and see what you think of it.

A NORTH DAKOTA SWEET-CLOVER SUCCESS; HOW SWEET CLOVER HAS BEEN MADE TO CHANGE THE VIRGIN SOIL INTO BIG AMERICAN DOLLARS—FEEDING AND MARKETING THE CROP.

In the first place, this sweet-clover plant is not a new plant to the old timers in this county. We have seen it grow in yards around buildings, on the roadsides and railroad grades for the last twenty years. All we know is what people from the middle states told us, and they condemned it as a pestiferous weed that eventually ruins the farms. Many cut it while in blossom on the roadsides and burned it in order to destroy the horrible stuff, and still there would be sweet clover the following year.

Stock would not or could not eat the "stuff," hence absolutely worthless, so these Illinois farmers told us, and they certainly knew. Many of us contended that inasmuch as it looked like alfalfa it might contain the same fertilizing properties, and perhaps stock would eat it if they once got the taste of it.

Personally I felt that if the plant prospered so well along the roadside and wherever it could get a foothold in a gravel bank, if it could be utilized as a forage crop the question of diversified farming in North Dakota would be solved forever. I cut some of the green weed and took it with me to my farm to see if the cattle or hogs would eat it. That was in the summer of 1913. I found that, as a matter of fact, both hogs and cattle did eat it after being locked up for half a day without anything else to eat. I tried several times and concluded that the hogs at least would take to it like a duck to water.

I had wondered to myself where I could obtain some seed for a trial. I asked the agricultural experts, but none seemed to know just where. One day, Mr. Burns, the Eddy County man, informed me that he had learned that sweet-clover seed could be obtained in Kansas, and that he would arrange with the agricultural station in that state. However, before his answer came I learned from an article in *Successful Farming*, one of the best agricultural papers in the West, published at Des Moines, Iowa, where I could obtain seed, and further learned from this paper that many had raised the sweet clover for a number of years, and all praised it, both as a fertilizer and for pasture and hay for all kinds of stock, being almost equal to alfalfa. I also learned that the Agricultural Department at Washington has issued bulletin No. 485—which can be had for the asking—and I sent for it and read it several times until I knew all the instructions by heart.

After being fully convinced that sweet clover is just the very plant that we need on our fertility-depleted fields, I purchased white-blossom sweet-clover seed to sow twenty acres, prepared the soil according to directions as sent out in Bulletin 485, and seeded twenty acres at the rate of fifteen pounds to the acre, May 10, 1914.

In order to outline the results fairly I feel it necessary to mention more particularly the result as a hog pasture than for any other purpose. We had two small hog pastures containing one and one-half acres each, or three acres in all, that had been seeded to oats and barley for several years previous and hogged down. Everything had been eaten to the ground—grain, straw, and all. We disked these patches twice, and seeded 15 pounds of hulled seed to the acre, and left the hogs on it from the day it was seeded.

In spite of the fact that some fifty large hogs and as many or more pigs tramped over this ground, picking what young plants had started to grow, they failed to destroy the roots, as it kept on growing all summer. I seeded fifteen pounds to the acre on the rest, or seventeen acres. Seven acres of this was seeded on alfalfa ground that was seeded too thin to make a crop of value. On two acres I seeded barley as a nurse crop. Nine acres of the plat was on corn stubble. We disked it two times, and seeded as before. Two acres were spring-plowed and packed with a Dunham packer. Both the corn stubble and spring plowing were seeded without a nurse crop.

On June 27 we had this plat of 17 acres fenced in and turned the hogs on it—over 50 full grown and about one hundred pigs. The sweet clover was then eight to ten inches high. On July 8 we concluded that the hogs could not eat it down fast enough, and we cut all but the spring plowing and barley for hay. We gathered fourteen loads; but there was some pigeon grass and some alfalfa along with the sweet-clover hay.

The hogs continued to eat it, but could not keep it down altogether. We fed them not to exceed a pound of barley a day. About the middle of July we turned in nine calves. They went at it as though they had been trained. Still the clover grew too fast, and we turned in fifteen horses, among them seven mares with colts. About the first of August the hogs had increased to over 200, but still this 20 acres seemed to supply all the nourishment that these 229 head needed—excepting, of course, what we fed the hogs—and continued to feed them all until the middle of September, when we removed most of the horses. About the first of October we left only the weaned colts, calves, and the hogs, and they continued to feed on the clover until freezing time. About the middle of October we fenced in 26 acres of corn for the hogs, but still they turned to the sweet clover for green food, and even went so far as to pull it up by the roots and eat it, roots and all.

I will say in addition that I never saw stock do so well on any pasture in North Dakota. I have never raised as fine a bunch of calves during my thirty-five years' residence, and have never gained such profit on hogs as I did on this 20-acre plat of white sweet clover. I may add that I shall seed 50 acres of corn stubble to sweet clover this spring for additional hog pasture, as I have 135 or more sows which will have pigs in the spring.

In addition to my experience with sweet clover there are eight others in this vicinity who have gone "wild" and seeded from one to three bushels; but this has mostly been seeded with a nurse crop. I also seeded about one acre in a barley-field, and it looked very good after the barley was taken off, and will no doubt make a heavy stand the coming year.

Some have asked if sweet clover should be preferred to alfalfa. So far as I am able to judge I would answer yes and no. It depends entirely upon your local conditions.—*P. M. Mattson.*

We think it will pay our friends who are interested in sweet clover and alfalfa to subscribe for this alfalfa journal, published at Sioux Falls, S. D., at only 50 cts. a year.

TEMPERANCE

HOW PROHIBITION "STOPPED BUILDING."

TUCSON, Arizona, Oct. 20.—When Arizona "went dry" it was asserted that the result in this city would be "no more building;" that the 32 vacant saloon buildings would be such a drug on the market that not another structure would be erected in the city in a long time. Now, according to the report of the city building inspector, 1915 will show the biggest building record in the city's history, the building cost falling, all told, not very much below half a million dollars; whereas the record of 1914, the last license year, fell below $400,000, and 1913 just exceeded $300,000. The emptiness of the "32 empty saloon buildings" vanished like the dew before the necessities of legitimate business.—*The Vindicator.*

PROHIBITION IN ARIZONA.

Bro. Amos:—In regard to whisky and the effect of its being "cut out" here: It has caused much trouble for some of the officers to watch the "bootleggers," as they run their autos over the line in New Mexico, and smuggle it in. But the law is so strict that they will get tired of it soon. It seems as though "old Ohio" ought to be as much civilized as Arizona.

Pima, Ariz., Oct. 29. J. H. ROOT.

My good brother, Ohio is pretty well "civilized," except the great cities—Cincinnati, for instance. They are, however, well along in the A B C class, and will surely "get there" if *we* "faint not." See the following from Wayne B. Wheeler:

OHIO ON THE "UPGRADE" STILL.

Last Tuesday's election in Ohio is another evidence of the fact that the progress of a righteous cause is absolutely irresistible. Twenty-two years ago, when the League work started in Ohio, if we made any mention of the possibility of statewide prohibition it was ridiculed. It was a struggle to secure even local option for the smallest units. The sentiment gradually grew until the people secured local-option laws for all the units of government up to the county. The high tide under county option and local-option laws was 63 dry counties. The vision of the people continued to broaden, and their convictions continued to deepen until on the statewide vote 70 counties went into the dry column.

In this last election the majority of 84,000 against prohibition was reduced to approximately 40,000. Seventy-four counties of the eighty-eight voted for statewide prohibition (unofficial returns). This splendid result was accomplished in spite of the fact that it was an off year in voting. The city vote was heavy because municipal officers were elected, and the rural vote light because no state officers were elected.

There is nothing discouraging in the result; on the other hand, it is positive proof that, with steady fighting, more education, better organization, and with half as much gain in the next contest, victory is sure. W. B. WHEELER,

Attorney for Anti-saloon of America.

Columbus, O., Nov. 3.

THE DAVIS LAW DECIDED CONSTITUTIONAL.

We clip the following from the *Florida Times-Union:*

Supreme Court, by a close vote, 3 to 2, declares Davis Package Law constitutional. Opinion filed early yesterday afternoon in habeas corpus proceedings brought to test validity of Davis Package Law. Decision had been eagerly awaited for weeks throughout the state. Sections 1 and 7 of the law were attacked by counsel for liquor-dealers in effort to have the law declared unconstitutional. Law was considered exceedingly stringent; Chief Justice Taylor and Justice Ellis rendered dissenting opinions.

See our recent back numbers for particulars in regard to Davis law.

"BOOZE" ADVERTISING; CAN'T SELL PAPERS HAVING SUCH IN GEORGIA.

We clip the following from Bradentown *Evening News:*

GEORGIA SENATE PASSES DRASTIC LIQUOR LAW.

ATLANTA, Nov. 9.—The Georgia State Senate, in session here, passed the Mangham-Ransom bill prohibiting liquor advertisements in any form in Georgia.

The provisions of this bill make it a misdemeanor to offer for sale any newspaper, periodical, or magazine which contains such an advertisement.

Now, then, say what you like about Georgia, but give her credit for the above. What other state *dares* follow suit?

"BOOZE" ADVERTISEMENTS—ANOTHER GREAT CITY DAILY TURNS THEM DOWN.

The Detroit Journal to eliminate whisky, low theaters, and objectionable copy from its advertising columns.

No whisky advertisement, no objectionable medical advertising, no dubious financial advertisements, no parasitical advertisements, no debasing theater advertisements, no loan-shark advertisements, no unclean or doubtful advertisements of any kind will be accepted by *The Journal.*

To *The Journal's* 500,000 readers, and to its thousands of advertisers, to all the world, we make this bold and resolute announcement.

It has been our advertising policy in the past to refuse everything that seemed positively injurious, vicious, or debasing to the public taste.

The Journal has, after years of militant labor in the interests of a cleaner Detroit, found itself to be the acknowledged leader and exponent and mouthpiece of public decency.

From *The Detroit Journal,* October 28, 1915.

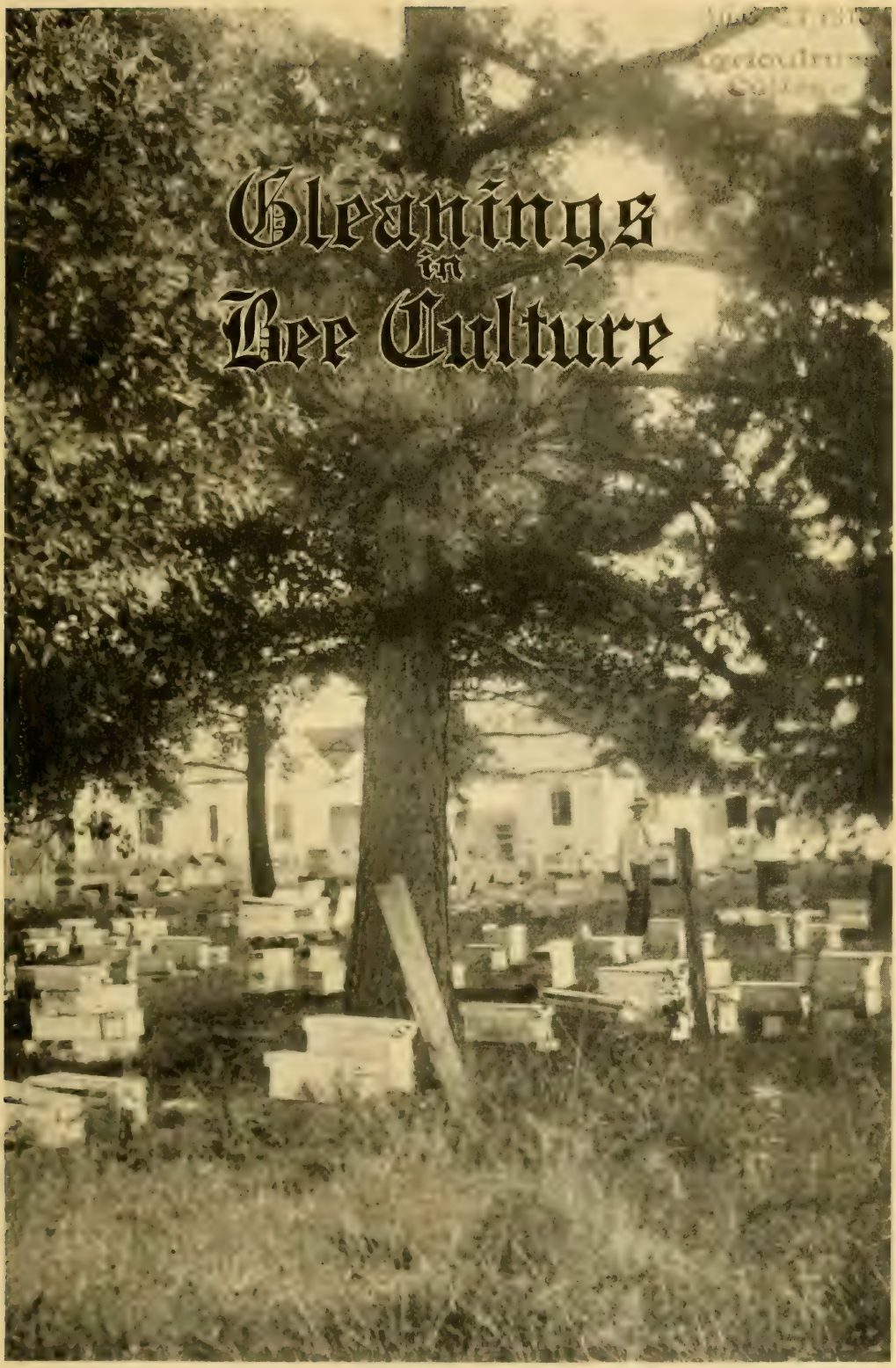
"TWENTY-FIVE TIMES" AS MANY WITH SALOONS OPEN.

Senator Peterson quoted from police records to show the enormous decrease in drunkenness in Moorhead, Minn., after the saloons were closed. For July, August, and September, 1915, there were 88 arrests for this cause as compared with 2165 for the same three months of 1914, or approximately *twenty-five times* as many arrests for drunkenness with the saloons open.—*Union Signal.*

"GOD'S KINGDOM COMING."

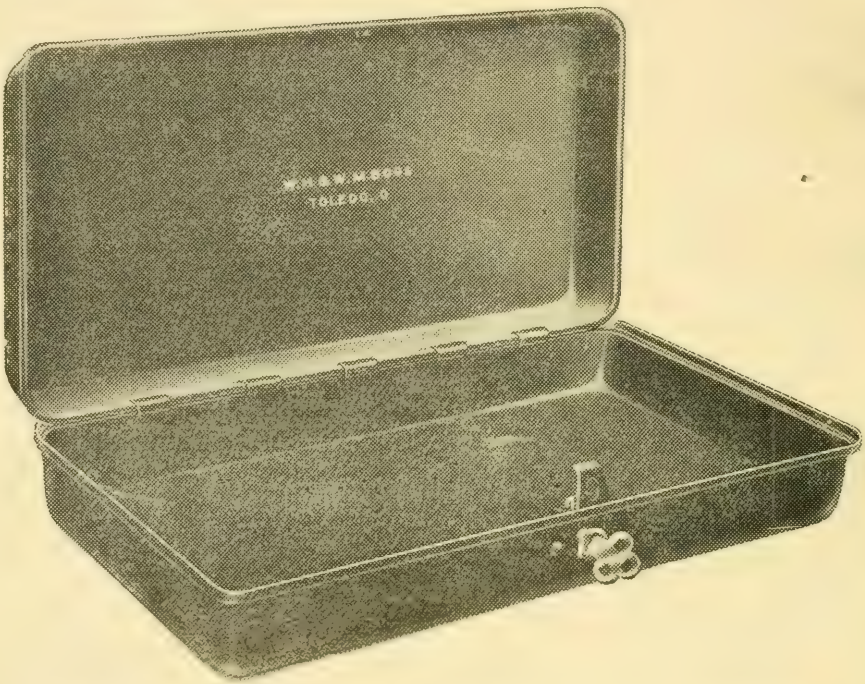
A most excellent and exhaustive article in the *Christian Herald* for Nov. 10, entitled "The Race-wide War on the Liquor Traffic," closes with these words:

"The great world movement against alcohol is helping to answer Christ's prayer: 'Thy kingdom come. Thy will be done on earth as in heaven.'"



Vol. XLIII DECEMBER 15, 1915 No. 24

Safety First Steel Document Box . . Valuable Paper Wallet



The steel DOCUMENT-BOX has a black ebony finish, is fire-resisting, has a double-hinged cover fitted with spring lock and two keys. It is eleven inches long, five and one quarter inches wide, and two and one half inches deep. As it is meddler-proof and curiosity-proof, it gives one an opportunity of filing away those valuable papers, letters, and keepsakes with which one does not care to have others become familiar.

The PAPER WALLET which fits into the DOCUMENT-BOX is not shown in the illustration. It has a strong, finely grained cover fitted with eight tough manilla-paper envelopes for documents, with printed forms for each and classified as follows: Notes and Mortgages, Last Will and Testament, Contracts, Deeds, Life Insurance Policies, Fire Insurance Policies, Clippings, and Memoranda.

Send us ONE NEW yearly subscription to GLEANINGS and TWO new six months' subscriptions, remitting in payment $1.50, and we will send as premium without additional cost one of these DOCUMENT BOXES and PAPER WALLET.

OR

Send us ONE NEW yearly subscription to GLEANINGS with remittance of $1.00 **plus postage on the PREMIUM** which weighs about two pounds, and we will send you the box and wallet as premium.

Canadian postage 30c a year extra; 15c extra for each six-months' subscription.

Gleanings in Bee Culture . . . . Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

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VOL. XLIII. DECEMBER 15, 1915 NO. 24

EDITORIALS

The reader will be interested particularly in an article in this issue by B. Keep, about the man who built his fine house from cellar to gable himself with the money he made from his bees.

The National Beekeepers' Association will hold its next convention in Chicago on Feb. 22, 23, 24. Fuller announcements will be given January 1. Chicago is a convention city, and the attendance at this meeting ought to be a record-breaker. Every one who can should make his plans to go.

Mr. Francis Jager, of the State University of Minnesota, is sending out to the beekeepers and farmers of his state a circular letter on wintering bees. It is short, crisp, and at the same time orthodox in its teachings. It will do a great deal of good to a large class of farmer beekeepers who do not know the fundamental principles of good wintering.

We take pleasure in referring to our index, which has been prepared with unusual care. The reader, in order to get the most out of his subscription price, should, with the index before him, go over his back numbers for the year, especially during the long winter evenings, as many an article that he was compelled to skip in the rush of the season he can read and digest.

An Alabama Queen-yard

A cocoanut-tree was the most prominent feature of our December first cover picture. This time it is a long-leaf pine, which shelters a portion of the queen-yard of W. D. Achord, Fitzpatrick, Ala., who writes the article entitled, "Building up a Business in Shipping Bees without Combs," which appears on page 1031 of this issue.

The cover illustration shows a portion of his 400 mating-boxes at the home yard, as they looked the latter part of September. this year. Mr. Achord's residence stands in the rear of the picture.

Wintering Experiments on a Large Scale

Attention is drawn to an article on wintering, by J. J. Anderson, in this issue. Mr. Anderson is one of the extensive beekeepers of his state—a man of wide experience, and one well qualified to speak on almost any question relating to bee culture. He tried a series of experiments during the winter of 1914 that are interesting and valuable. Instead of trying out all these different ways of packing on a small scale he went at it in a large way, so the results are all the more conclusive.

We called on him last winter, and the photographs will help to show the different methods he used for wintering. The results go to show that the cellar came out a little ahead; and next in order in good wintering was the Holtermann winter case, leaving the other bees, packed in long rows, to come out third and fourth.

Testing out so many colonies with upper entrances we regarded as a bold experiment; and while the result is, perhaps, not surprising, it is worth something to know that practice bears out theory.

Catch the Eye of the Cook

The editor of *The Mabel Record*, Mabel, Minn., has started something. He has begun to publish in his paper recipes from Gleanings for October 1, and will continue to print three or four of them in each issue until the close of the year. On January 1, 1916, the woman who reports on the largest number of recipes will be given a gallon of extracted honey.

Recipes of this nature are sure to prove interesting to readers. Here is an idea: Get the editor of your local paper to run a column or so of recipes in the same issue in which your advertisement appears. Live

matter of this kind not advertising any particular honey he ought to be willing to print free of charge, especially if you buy ten or twelve inches of advertising somewhere else in his paper.

The women will find the column irresistible. Your honey advertisement will pull harder than it ever pulled before. The beekeepers who market honey locally can not afford to neglect such opportunities as this.

Olive Oil and Honey as a Tonic

Our attention has been called to the following clipping from the Home Department of the *National Magazine* for August, last year. This happens to be a preparation that we have tried ourselves, and found pleasing to the taste. What a blessing it would be to humanity in general, and, incidentally, to beekeepers in particular, if all who take olive oil would take it with honey!

OLIVE OIL WITH HONEY.

Olive oil is one of the finest flesh-builders and nerve foods in the world, and I often wonder why parents do not give it to the children more than they do. Combined with honey, which is also valuable as a food and a blood purifier, it makes an ideal tonic, and the oil cannot be distinguished. Try a teaspoonful of each before meals or after, or with the meals; the amount may be increased if desired. In the absence of honey, any sweet fruit juice may be substituted, and makes a much more palatable combination than the acid juices, such as lemon, grape juice, etc., which are usually recommended as a disguise for the oil. Children, especially, prefer something sweet.

A New Bee-book, "Productive Beekeeping," by Frank C. Pellett

Scarcely had Dr. Phillips' book, "Beekeeping," issued from the press of the Macmillan Co. than the announcement came that there is still another new book just from the press of the J. B. Lippincott Co., Philadelphia, entitled "Productive Beekeeping," by Frank C. Pellett, State Apiarist and Foul-brood Inspector of Iowa. Mr. Pellett is not only a student of apiculture but also of natural-history subjects. The new volume contains 340 pages of original matter and 134 illustrations, mainly half-tone engravings from photographs taken by the author himself.

While we have not been permitted to see the completed volume, the publishers have kindly placed in our hand proofs of the pages up to 298. We have not read all this work page by page, but we have gone over it enough to know that it is safe and orthodox in its teachings. While the author believes that a few minor methods are original with him, the book is not presented for the purpose of exhibiting original material, but to describe the best methods gleaned from every possible source. In no sense can it be said to be a rehash of material from other works.

The book is well worth the price asked—$1.50. The same can be had from this office, or we will club it with Gleanings for $2.10 postpaid. Canadian postage 30 cents extra, and foreign postage 60 cents extra.

Self-spacing by Hive-rabbets Rather than by Projections on the Frames Themselves

The article by A. Butsch in this issue shows a method of spacing frames by means of notches in the hive-rabbets. While we don't like to throw cold water on the proposition, the public should know the facts. Our correspondent said he thought of patenting it, but we doubt if he could secure a valid patent in view of the patents that have been granted on the same principle. There are many modifications of it, and the principle has been tried out over and over again, only to be abandoned sooner or later. In our A B C and X Y Z of Bee Culture, under the head of "Frames, self-spacing," will be found a variety of self-spacing rabbets—see page 256 of the last edition.

The objection (and it is a serious one) is that, in moving bees out to outyards, the frames will hop out of their place when colonies are drawn over rough roads. Another serious objection is that the frames cannot be handled in groups of threes and fours like those having spacers on the frames. The very fact that the rabbet scheme of spacing is born again and again, and that it dies almost as soon as it is born, shows that it cannot hold its own with the scheme of having the spacing device on the frame itself.

Our correspondent speaks of the necessity of having a grindstone handy to sharpen the honey-knife when extracting from metal-spaced frames. We have extracted here at Medina a great many tons of honey from metal-spaced frames. We do not sharpen the knife except as it becomes dull after half a day's uncapping. We find no necessity at all for bumping against the metal projections.

A New Edition of "Fifty Years Among the Bees," Again

In 1885 Dr. C. C. Miller, of Marengo, Ill., got out a modest little volume entitled "A Year among the Bees." This, like the

subsequent editions, was as entrancing as a romance. When the edition was exhausted a larger and more pretentious volume was gotten out by the doctor, entitled "Forty Years among the Bees." This was in 1902. This again was exhausted in 1911, when the first edition of "Fifty Years among the Bees" appeared. This, like the previous volume, contained a good many original photographs and a general revision. Still again another "Fifty Years among the Bees" has come from the GLEANINGS press. "It's a dandy." It still bears the title of half a century, notwithstanding four years more have been added to the time. The last edition was not revised as extensively as the former editions, and this only goes to show how nearly Dr. Miller in the first edition of "Fifty Years" got down to rock bottom. But, nevertheless, here and there occur slight changes. The most important changes relate to his record-breaking honey crop in 1913, to his later experiences in fighting European foul brood, and to minor changes in methods here and there; otherwise the two editions of "Fifty Years" are very much the same.

In all there have been sold of Dr. Miller's books under the various titles, or will have been when the present edition is sold, something like 18,000 copies.

Dr. Miller, notwithstanding he is past 84, when most men would have passed to their reward, is still very much alive and very much of a beekeeper. By Dr. E. F. Phillips he is considered to be the best comb-honey producer in the United States if not in the world. At all events, Dr. Miller's methods have been utilized and copied all over the world. He has originated methods and processes in the matter of swarm control and in the production of comb honey that help make him "the grand old man" that he is in the bee-world today, revered and respected everywhere, not only for his beautiful spirit, but for what he has done.

Just in the matter of comb-honey production alone "Fifty Years among the Bees" is worth many times the price, $1.00; or clubbed with GLEANINGS for $1.50. Canadian postage 30 cents extra, and foreign postage 60 cents extra.

A Serious Situation in Florida

OUR readers will remember Wilmon Newell, formerly State Entomologist of Texas, who did such good work in bee-culture investigations and who for years was unremitting in his efforts to secure a foul-brood law in Texas. He finally succeeded, but failed to get the necessary appropriation to carry it into effect. Later on this was secured; but along about this time the powers that be in Florida began to look for a good man to handle a most alarming situation in their state. To make a long story short, Mr. Newell was called to and accepted the position of Plant Commissioner by the State Plant Board, Gainesville, Florida. The announcement of his acceptance was given in this journal for September 1st, page 696.

In his new position Mr. Newell has not been idle. He and his associates are doing all in their power to avert a situation more serious than foul brood—a situation that has already cost the state of Florida many thousands of dollars; and unless it can get more money to handle the problem it will be the ruination of the citrus groves of the whole state.

It appears that the disease known as the citrus canker was imported a couple of years ago into Florida from Japan. This disease is awfully virulent, makes rapid headway, and has now found its way into seventeen counties. The worst thing about it is that there is no cure except the complete extermination of the orchards, tree, root, and branch, by fire. The sprays that are effective for ordinary diseases are absolutely powerless.

Florida has already appropriated $125,000, and a like sum has been contributed by the Florida orange and grapefruit growers. The result has been that, so far, every infected tree or orchard has been burned. Mr. Newell and his associates say their funds are running low, and that the disease will break out again, because there are other trees and orchards that are probably diseased, but where the canker has not as yet shown itself. What are now most urgently needed are funds to provide adequate inspection work to catch the disease as soon as it breaks out.

Florida is appealing to the United States, which has already appropriated $35,000, $22,000 of which went to Florida, to hold the disease in check; but before the Florida legislature can meet again, there is urgent need that Uncle Sam reach down in his pockets and help not only Florida but other states like Alabama, Mississippi, Louisiana, and Texas, where the disease has already taken a foothold.

Our readers are urged to write to their Senators and Representatives, urging them to support any bill or appropriation that will tend to prevent the utter annihilation of the orange, grapefruit, and lemon business.

Perhaps this propositon may not interest beekeepers; but it should be remembered that beekeeping and citrus-growing go hand in hand. Orange honey is getting to be one of the commercial honeys that is very highly prized. While the amount is not large, it is sufficient to attract the attention of every beekeeper who would protect his industry —especially the industry of his fellow-beekeeper in states where the production of orange honey is possible.

In the mean time we congratulate the people of Florida on having so able a man for Plant Commissioner as Professor Newell. He is by training and general temperament eminently qualified to handle the situation.

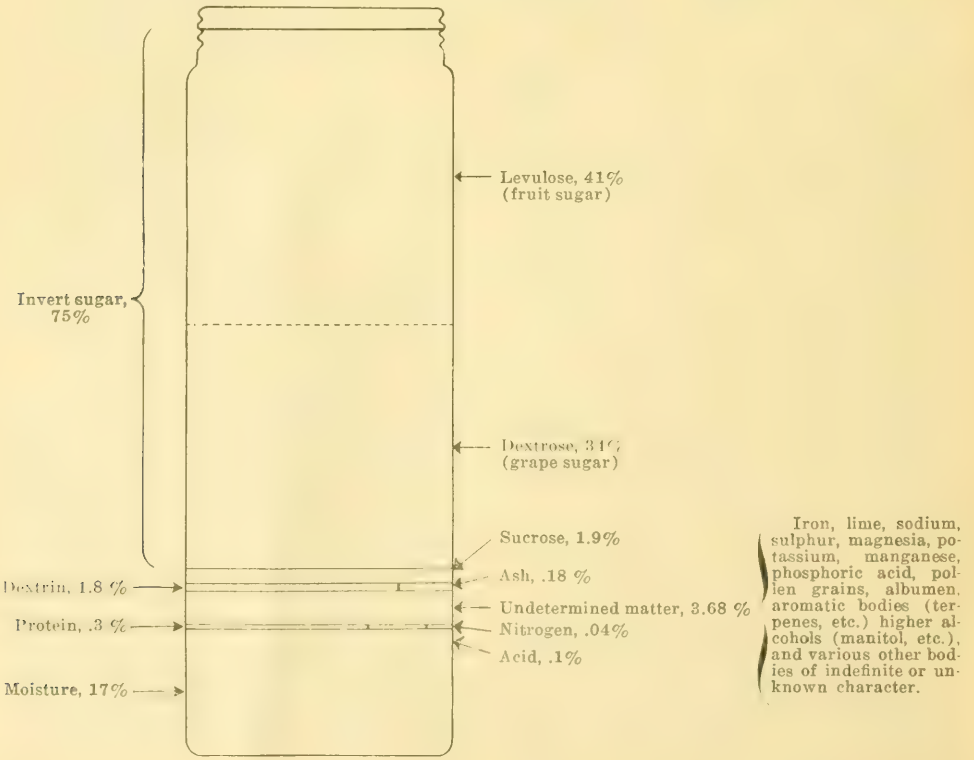
The Economy of Honey as a Food

CARBOHYDRATES, usually in the form of sugar or starch, are the elements of food important in furnishing energy. Since honey is richer in carbohydrates than in other food elements, it comes in the class of energy-producing foods. Honey contains very little protein, the muscle-forming element of food, and no fat. The ash and undetermined matter shares in forming bone and aids digestion.

The unit of comparison of foods is the calorie. This is, approximately, the amount of heat which would raise the temperature of 1 lb. of water 4° F. The energy value of honey is about 1485 calories per pound, which means that if *all* the heat potentiality in a pound of honey could be utilized it would raise the temperature of 33 lbs. of water from freezing to the boiling point.

Basing food value upon the amount of energy in calories to be derived from a food, and taking the average prices into consideration, honey is a more economical food than pears, oranges, figs, bananas, strawberries, and grapes, other foods in the the same class of energy-producers. Of foods in other classes, honey is more economical as an energy-producer than celery, tomatoes, canned corn, and all the meats, with the possible exception of pork chops. On the other hand, it is less economical than bread, cereals, potatoes, baked beans, sugar, and apple.

These comparisons were made from studies and tables from the U. S. Department of Agriculture and other sources. The diagram below illustrates graphically the constituents of an average jar of honey. The flavor of honey depends largely upon the presence and proportion of the elements bracketed as "undetermined matter."



Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



JOHN L. BYARD uses candy and foundation in mating-boxes, p. 941. Swiss beekeepers use candied honey, without comb or foundation.

THE EUROPEAN war pinches where one would hardly expect it. *The British Bee Journal* has cut down its number of pages because the war has made it impossible to get enough paper!

EARL SEAMANS, I quite agree with you, p. 932, that European foul brood is not such a dreadful calamity, but I don't agree in thinking the queen must in all cases be killed. You caged a queen, gave clean combs, and the disease returned. I've caged a good many queens, gave no clean combs, but left the diseased combs, released the queen in ten days, and in the great majority of cases there was no return of the disease. In a very bad case I would kill the queen; but a good beekeeper should never allow a case to get so bad as to need the queen killed.

R. F. HOLTERMANN, p. 944, you think I never saw a moving-picture show. Oh, yes! I'm fond of a good movie. Then you want to know how many straight lines there are in a circle. I suppose you want me to say an infinite number of infinitely short lines. But I know a better answer than that—there's only one line, "a curved line," as the dictionary has it. And now I'll agree that, when there's danger of a comb breaking out, your way of handling is excellent; but just as soon as possible I'd try to have all combs so that so much ceremony would not be needed.

FRANK L. POLLOCK relates, p. 937, "that almost every bee that took wing loaded from the cappings ejected a fine spray of fluid before reaching the window." That reminds me that when bees are robbing a hive or a super, especially if the entrance be small, all about the entrance is daubed and sticky. May it not be merely the ordinary evacuation? [You will remember we reported how bees taking thin syrup from an outdoor feeder would emit a fine spray on taking wing. We had supposed that this fine spray was nothing but water, and that it was a trick of nature which we have not fathomed, by which bees can, while on the wing, eject a large amount of water either from nectar or from thin syrup. If the bees cast this spray while gathering thick or well-ripened honey immediately on taking wing, then our fine-spun theory has received a jolt.—ED.]

E. F. ATWATER, you gave me a scare when you came down so savagely on dummies, p. 928; but on reading further I found you objected only to their flimsiness. You're dead right in that. Such flimsy things as I've seen sent out are a disgrace to manufacturers. But aren't you a bit off in thinking that a dummy not over ⅜ thick must necessarily be flimsy? I had a few an inch thick, but nearly all are 5-16; and after 25 years' use I don't see but they stand the racket just as well as the inch ones, all but the lugs, and I've remedied that by using a tenpenny nail strapped on with a piece of tin. Neither has there been any trouble with comb built at sides. You say the dummy is sooner or later thrown away. Well, I saw at Ernest Pike's eight-frame hives without dummy, and equal space at each side, and I'm not entirely certain it isn't an improvement. The self-spacing feature is *not* destroyed; and if you stop to think a minute you will see that with the usual arrangement we have less space at outsides than in center, and it seems there should be more. No, there's nothing wrong with a dummy ⅜ or 5-16 if it's made right, and 14¼ for ten frames, with no dummy, is an abomination. [We do not agree with your last sentence. We have been using our ten-frame hives 14¼ wide, hundreds of them, at our yards—ten frames without dummies. The fact is, the whole bunch of frames should be placed so that there will be an equal space on each side. The two outside combs may be built out a little in the height of the honey-flow, and that is all. As a general thing, a dummy, no matter what its thickness, is harder to get out of a hive with its full complement of frames than any one of the frames. One manufacturer, and possibly more of them, will leave out dummies in their 1916 hives.

The ordinary Hoffman frame will, by the accumulation of bee-glue and wax, space wider and wider until the extra quarter-inch is practically taken up. When the frames are new the 14¼-inch width is a trifle wide; but as the frames grow older the increased spacing for each frame makes the 14¼ about right. After a great deal of travel we are satisfied that the average beekeeper of large experience does not use dummies with a full complement of frames with either an eight or ten frame hive.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



Bees here in Vermont are in most excellent condition this fall, and the ground is better covered with clover than for many years past; but our next year's crop of honey will depend on the coming months.

* * *

Editorial entitled "The Abuse of Bait Sections," page 831, Oct. 15, is timely and to the point. To my sorrow, I have been caught once or twice by using them. Who can tell why it should granulate in such combs sooner than in newly made combs? and why should comb change to a dirty yellow by standing empty for eight or ten months? and why should honey fed back to finish sections be darker than when fed? Who can tell?

* * *

In giving his treatment of foul brood, Mr. Greiner tells us, page 751, Sept. 15, how he saved his hives but burned all his frames and combs. It was well to save the hive, but why burn all the combs? Why not make them into wax worth, perhaps, 30 cents a pound, or quite a dollar's worth of wax to the hive, and then burn the slumgum? The heat will kill all germs of foul brood, and you save just so much.

* * *

On page 742, Sept. 15, the editor says of fall-united colonies that "for some reason they do not seem able to get together as one working unit like a regular colony," which reminds me of a yard I visited a few weeks ago. I found the colonies nearly gone with foul brood, and advised the owner to break all up. He was anxious to save some bees, and united five into one colony, putting them into a large oblong hive without frames. When I called on him again I found these five small colonies had clustered in the top of his hive as three distinct colonies—three of them going together at one end and the other two occupying each of the two opposite corners, and each of the three building separate sets of combs.

* * *

That article by Allen Latham, beginning on page 887, Nov. 1, is to my mind one of the best, if not *the* best, in this number of GLEANINGS. Mr. Latham is a typical Yankee, and never does things because some one else does, but does his own thinking, and takes the path that is most likely to accomplish his ends without regard to what others think, or the difficulties in the way. That the rules he lays down will work where there is a good flow of honey I have not the slightest doubt, for I have produced tons of non-separatored section honey myself. But I wanted to call attention to the fact that the rules he lays down are of as great value in the production of honey with separators as without them.

* * *

It does one's soul good these frosty mornings to look at those photographs of flowers by J. M. Buchanan, of Franklin, Tenn., on pages 842, 843, Oct. 15. I notice, however, one is not named correctly. It is a boneset, sure, but not *Eupatorium perfoliatum*. There are sixteen species of the boneset family. Mr. Buchanan says the species his illustration represents grows on high lands, and furnishes a good crop of surplus honey of fair quality, light amber in color, while *E. perfoliatum* grows on low lands or in swamps, and the honey, while a light amber in color is quite bitter. Gray says of it that the "leaves are lanceolate, united at the base around the stem;" *i. e.*, they are without any peticle or leaf-stalk, and the stem perforates the leaves; hence the name, "perfoliatum." It is generally known here in the East as thoroughwort.

* * *

How beautiful are the lines of Grace Allen on page 881, Nov. 1, "The Lament of the Drones"! How often has a feeling of sorrow and sadness come over us as we have seen the drones driven from the hive to die of cold and hunger! And the workers, too—how brief is their life—not much if any longer than that of the drones, except those which come on to the stage in late summer or early autumn! They may live through the winter only to perish in the spring. But such is life on this earth. The flowers bloom and quickly wither. The leaves that have clothed the earth with beauty through the summer at the approach of autumn drop to earth and turn to dust. And man, even, opens his eyes upon a world of life and light and beauty, and in a few brief years closes them in darkness. What does it all mean? Surely life is the great unsolved problem, until our hearts are touched by the Spirit of the Most High, and we look up and recognize our kinship with the infinite, and hear the words of the Master, "Because I live ye shall live also." Isn't it just grand to think we may live on through the ages while material things perish?

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



There was an annual meeting of the California State Beekeepers' Association held in San Francisco in August, at which the election of officers was reported. Now comes the announcement that the State Association meeting will be held in Los Angeles in December. I am wondering how many annual meetings can be held within one year. I had been led to believe one annual meeting was all that was possible within a year, but it seems that I have been mistaken.

* * *

There is a certain difference in colonies of bees that is so striking that sometimes it seems the apiarist must get acquainted with each colony. We come to a colony that seems to have time only to rear brood; another is in quest of honey, and the bees are doing their best to store quantities of it, jamming it into the brood-nest to the detriment of the future strength of the colony; another may be strong on pollen-gathering. To manipulate and regulate the course of the individual colonies is the task of the apiarist, and one that will often pay big returns.

* * *

It was my great pleasure recently to visit one of the districts of the state where the eucalyptus yields sufficient to give a surplus. My bees are lying dormant or practically so, with very little if anything yielding them a load of pollen or a stray load of nectar, back in the foothill region. But in this land of much eucalyptus I was surprised as well as pleased to see them line out for the blooming eucalyptus. The flight roar was well defined and heavy; the unmistakable weary-winged fall upon the alighting-boards told of nectar in goodly quantities. The inner life of the hive was all excitement with the queens busy, and all of the hive force diligently bending to their task. This flow will last several weeks yet, perhaps until the middle of January, by which time an abundance of bees will fill the hives. Those of us who are depending on wild flora are wondering if we shall get sufficient rain to save our fast-drying crops of filaree that we may have an early source from which to stimulate our colonies.

* * *

The much-talked-of "new bee disease" seems to have found its way into the land of sunshine as well as the upper coast region, where they have eleven months of wet weather and August. So far as I know, the only place it has appeared here is in the vicinity of Fullerton, Orange County. All I learned of it there was from Mr. J. E. Pleasants, inspector of that county. Mr. Pleasants said there was a small district where several apiaries had been and were still badly affected by a disease which he remarked was much the same as described in the October issues of GLEANINGS. There are some queer citations in connection with its appearance. If I am correct, Mr. Pleasants said the disease first made its appearance in the apiary of Mr. Green, recently of New York, who purchased the George Emerson bees.

Mr. Pleasants also told of visiting the apiary of Mr. Seligman last spring, finding them in perfect condition, strong and busy. Within six weeks of that time he was called back to examine them again, Mr. Seligman having reported them dying. Mr. Pleasants went at once, fearing black brood. When he arrived he found the bees crawling out of the hives by the thousands, some hives having dead bees an inch deep in front of them, and the hive force badly depleted. The brood was dying, apparently in all stages. I asked many questions, but Mr. Pleasants seemed to think the disease was distinguishable from paralysis. In many respects he said it resembled that disease, but he had never seen paralysis act just as this disease did.

From the description given in GLEANINGS of its disappearance with good weather it seems at variance with the conditions here. The disease has been persistent during the entire summer in some apiaries, and surely a climate with open sunshine and no rain would obliviate it if that alone were a cure. Three miles from the apiary of Mr. Green, which had the disease so badly, he has another apiary, but over a range of hills. Of the many queens introduced in an effort to eradicate the disease, a part of each shipment was introduced in the apiary last mentioned. It remained in perfect health and fine condition, while the other continued to dwindle away. I should like very much to visit this apiary for my own observation, though I do not claim to be an expert on disease. Mr. Pleasants' opinion should carry considerable weight, as he has been a beekeeper for more than forty years, and inspector of Orange County for a number of years.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



BULK COMB FOR THE NORTH.

Why cannot bulk comb honey be profitably produced and successfully marketed in the North when we are packing and shipping it out every month in the year, including the coldest winter months? I can see no reason why beekeepers of the North cannot make it profitable business to produce this kind of honey for the market, during the summer months, at least. Granulation, which is the chief argument advanced against bulk comb honey for northern latitudes, would not play any part at that time. We are successfully marketing this product during the entire winter, by packing it as we get orders for it, reliquefying granulated extracted honey and putting it over the packed comb honey warm. It reaches the market in excellent condition, and is sold and consumed before it has time to granulate again.

BULK COMB HONEY AND BETTER PRICES.

With the proper distribution of our honey crops there would be a greater demand for honey and at better prices. This is one great obstacle confronting not only the beekeepers but producers of all kinds. Only the exceptionally well-organized producers are marketing their product with any marked success. Attempt after attempt has been made to organize the beekeepers, although but little has been accomplished in this direction. Consequently the individual has to look out for himself and work up schemes of various kinds to enable him to get his product on to the market. Along with these schemes the production of bulk comb honey for at least the home market and territory near by will work for excellent results. There is not a neighborhood that does not demand some honey; and advice has been all along the line to look after the home market first of all, and then, and not until then, ship to other places. Comb honey is always in demand if it can be obtained at a reasonable price. Section comb honey is necessarily expensive for the masses. But bulk comb honey can be produced so much more cheaply and easily that the price for it is within easy reach of the majority; and as a result a great quantity of the honey from the beekeepers' apiaries would find its way into the home market and prevent glutted conditions in the general market.

BULK COMB, PREPARING FOR ITS PRODUCTION.

This is the time to begin preparations for next season, and first for consideration comes the necessary amount of supplies that will be needed. Supers nearly always come in for their part in our "preparedness" program. In this connection I should like to emphasize again the matter of preparing for the production of bulk comb honey on at least a small scale during the coming season. I suggest this, not because I am "daffy" on the subject of bulk comb honey, but because I honestly believe that its wider production will result in great benefits to the beekeeping industry, and the beekeepers reap better rewards for their efforts.

In making these preparations you may want to supply yourself with some supers like those we use with shallow frames. The number of requests for information on this subject alone during the past two years has been amazing, and comes from all parts of the globe. More questions are asked about the style of frame best adapted for this purpose; and since we have had over fifteen years' experience with the production of bulk comb honey in all its phases, and with many different kinds of hives and other paraphernalia, we do not hesitate with our recommendations.

On page 1034 is a picture of one of our warehouses in which a dozen of us are shown nailing up a carload of three thousand supers and 30,000 shallow frames for our own apiaries. These are the regular deep shallow extracting-supers, 5¾ inches deep, and holding ten shallow frames 5⅞ inches deep, making a standard-sized super for the regular ten-frame equipment. Especial attention is called to the fact that the top-bars of all of our shallow frames are only ⅞ inch wide and ½ inch thick. This is a big improvement over the wider and thinner top-bars usually put out by the factories. The improved frames have greater strength, and allow more open space between the frames and from super to super, giving freer communication throughout the hive that is of inestimable value in increased production of honey. The top-bars are not grooved either—the thin-super foundation in full sheets being put in with melted beeswax. The groove is absolutely unnecessary, weakens the top-bar, causes delay by necessitating the tedious insertion of the foundation into it if the frame is grooved, and, after being once filled with wax, it cannot be used again after the honey is cut from the frame, anyway.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



CELLAR WINTERING FOR BEES.

"I understand you have been successful in wintering bees in the cellar. Last winter I was not successful in outdoor wintering. Bees died on the bottom-board during February and March, and dwindied badly in April and May. I wish to try cellar wintering. Is there danger of keeping the cellar too warm?"

With good pure air, 60 to 65 degrees of heat might be borne for a few days; but should that be kept up for four or five weeks it would doubtless start the bees to breeding, which would be very undesirable, especially during the first half of the winter. Then such a high temperature would be liable to cause a loss of bees from their leaving their hives and flying toward the light, if there was any crevice through which the light could penetrate; and if the cellar was totally dark, those that left the hive will be lost on the cellar bottom. We have been told that the bees that leave the hive would probably die of old age under any circumstances, and that their loss on the cellar bottom is better than to have them die in the hive. This may be quite largely true when the temperature of the cellar is kept below the point at which bees are accustomed to seek the open air; but when that point is exceeded, my experience has been that they begin to seek the open air; and the longer their confinement at a high temperature, the greater is that inclination till a loss comes about which is detrimental to very many of the colonies.

I am satisfied that fifty degrees is too high a temperature for successful wintering. Cellars differ; but the right temperature, as determined by the quietness of the bees, will generally be found to be between 42 and 47 degrees. Much also depends on the strength of the colonies. Weak colonies will bear a much higher temperature than the strong ones; but with all weak colonies it will be harder to get and keep the higher temperature without artificial heat.

"My cellar is 20 by 30 feet and 8 feet deep, and I wish to put 60 colonies in it."

With a cellar of that size and the number of colonies mentioned I should judge that the bees would winter all right without any special attention to ventilation. From past experience I should expect that your trouble, if any, would come through the matter of temperature rather than ventilation. The normal winter temperature of most cellars is generally too low for the successful wintering of bees. If the cellar mentioned is an average one the successful wintering of so small a number as 60 colonies in it may require strict attention. The reason of this is that 60 colonies, without aid, would hardly keep the room warm enough.

If the temperature of the cellar goes no lower than 37 degrees in the severest weather when it contained no bees, it probably would be all right for 60 colonies; but should it go to 28 or 30, then more bees or some other way of raising the temperature would be required to make successful wintering certain. It is well to remember that a cellar which is warm in very severe weather will be cool in warm weather; and a cellar that is too cold in severe weather is apt to become too warm in a mild or warm spell in winter; and with such a cellar one is almost at a loss to know just what to do at one extreme or the other.

"How about getting the bees in the cellar? Is it necessary to use smoke?

I never use smoke when setting bees in the cellar; and if care is used, no smoke is necessary. Be careful about unduly disturbing them. Put them in at a time when they are not easily stirred. If through any mishap a colony is likely to be thoroughly aroused, they can be kept in the hive by using a cloth of sufficient size to cover the entrance fully. Make the cloth pretty wet, and put it up snug against the entrance so as to exclude all light. However, this wet cloth must be removed as soon as the bees are in the cellar, otherwise a scramble to get out may result in the loss of the colony through overheating and lack of air. Take the bees in on a dark day if possible, when there is little wind, with the temperature between 35 and 45 degrees.

Prying hives up in freezing weather will unduly disturb any colony. See to it beforehand that there be no undue noise, cracking, or jarring, when they come to be taken in; then when the time comes to take them in, pick each hive up firmly but gently, carrying it to its winter restingplace, setting it in place as gently as it was taken from its stand. Two men with a rope of suitable length can carry bees in, so that they will hardly know that they have been moved. And one man with a spring wheelbarrow can do nearly or quite as well by using a heavy blanket or quilt folded so there will be several thicknesses between the hive and the wheelbarrow.

GENERAL CORRESPONDENCE

SOME INTERESTING WINTERING EXPERIMENTS BY AN EXTENSIVE BEEKEEPER IN IDAHO

A Comparison of Four Different Methods

BY JOSEPH J. ANDERSON

In the North the wintering problem will always be a regular part of the beekeeper's work if success is to attend his efforts, just as the wintering of sheep or cattle presents its peculiar problems and brings its exacting labor to the shepherd or cattle-breeder. There is this material difference, however. When our bees are put away for winter the work is over—no wading through the snow nor exposure to the cold blustering storms, carrying grain or forage or providing them with water.

Not enough attention is paid, at least by the beekeepers of this Rocky Mountain section, to this important problem, although its significance is coming to be recognized more and more. With young and vigorous queens, a hive full of young bees, and ample stores, the battle is half won.

With a view to determining the best method, if such there be, of winter protection, I tried last winter four different methods. At my home yard I put into my cellar, a log structure set into the edge of a hill, and facing the north, 158 colonies. See Fig. 1. These, on account of the mild weather and the difficulty of keeping down the temperature in the repository, I was compelled to take out March 17. It was too early, but the insistent restlessness of the bees compelled it.

Half of these were tiered with bottoms removed, the covers left on. They were set about four inches apart. The lower tier was set on two poles, and the upper tiers with the middle of the hive over the four-inch space between the two hives below it, break-joint fashion. The other half I tiered up close together with covers removed and burlap over the frames.

The unrest of the latter colonies as compared with those that had the bottoms removed was very marked—so much so that I found it necessary to remove the bottom-boards from some twenty or more of them and tier as the others, when the bees at once became quiet. Hereafter in my cellaring, all bottom-boards shall be removed.

When these bees were taken out of the cellar, March 10, only four colonies were dead, of which two I knew to be queenless when put in. By May 6, however, 13 more had succumbed, making a total loss of 17, about 10.8 per cent, if the queenless ones be counted. The general condition of these bees as regards strength and vitality was first-class.

At my north yard, the principal outyard, 333 colonies were packed as follows. See Figs. 2, 3, 4, 5, and 6.

Eighty-seven were "heeled in," or banked up as shown in Fig. 6. I first prepared 87 bee-escape boards by sawing out a 1½-inch piece from the rim near one corner, and tacking a thin strip underneath to prevent breaking. This made the entrance at the top, for the bottom was closed by dirt. Then these 87 colonies were set in a row facing the south, and as near together as possible. Next an escape-board, with escapes removed, was placed over each hive,

Christmas Fancies

BY GRACE ALLEN

Bees of mine, no longer humming,
Christmas Day is coming, coming,
With its thoughts forever bringing
Dreams of far away,
Of that dim and distant morn
When sweet Mary's Babe was born.
How the bells go ringing, ringing,
Christmas Day!

As he grew a little lad,
Were the bees, I wonder, glad
In sweet Mary's flowers to meet
When day began?
Then from vineyards warm and sunny
Did they garner choicest honey,
Rich and rare and heavenly sweet,
For Mary's son?

May be sometimes in the grass
He would smile to hear them pass,
Buzzing so through all their jolly,
Genial lives!
For these fancies, vague and fleeting,
Bees of mine, I give you greeting,
And I lay a sprig of holly
On your hives.

with the opening in the rim down and to the front of the hive. Then a super with a cloth tacked on the bottom, and filled with packing, was placed over the escape-board, and over all the hive-cover. Then a little straw was placed in front of the hives to keep the dirt out of the entrances and the hives banked up all around with dirt, the only opening being the small notch sawn in the rim of the escape-board at the top. When taken out of packing, April 25, five colonies were dead. May 6 a second inspection showed twenty-four dead, or 27½ per cent loss. Five were very weak.

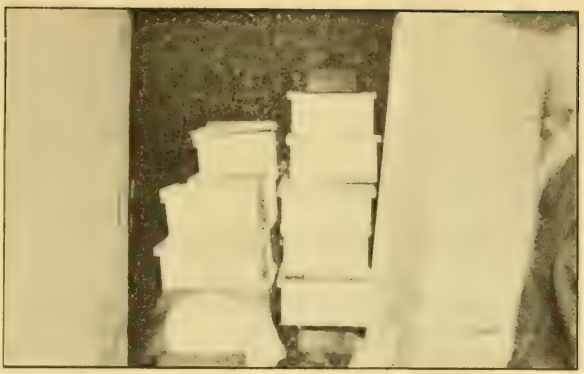


FIG. 1.—Anderson's home bee-cellar, looking in the doorway.

Sixty colonies were packed in quadruple winter cases as described by Mr. Holtermann, packed with planer shavings and sawdust. See Fig. 2, right foreground.

These wintered well, and on April 25 only one was dead, and this I put in queenless as a test; but on May 6 I found a total of 11 dead, or 18 per cent; very weak, two. In general these colonies seemed to be stronger than the rest in this yard.

One hundred and eighty-six colonies were placed in double rows, back to back, facing east and west. See Figs. 3 and 4. The hives were about four inches apart in the row, and the rows about the same distance apart. I next packed fine chaffy straw between the hives, and covered all over with about two feet of straw stacked so as to shed the rain. Hive-covers were left on.

Of this lot six colonies were dead when unpacked on May 6. At the second inspection I found 31 more, or a total of 37 dead, or 20 per cent. Eight were very weak.

When the bees at this yard were unpacked, only 12 colonies were dead. A spell of beautiful warm weather made me think the proper time had come; but cold stormy weather set in, and on May 6 a total of 72 dead colonies was found, and 15 very weak.

It will be seen that at the time of unpacking my losses were practically nothing; but ten days' stormy weather produced considerable havoc. The cellared bees wintered best of all; next, the bees in the quadruple winter cases; then those packed in straw, with those heeled in bringing up the rear, showing 27½ of loss in the spring storm.

In my field notes I find the following under date of May 6, 1915: "I shall not practice heeling in (banking up with dirt) any more; loss too heavy; bottoms wet and soggy; combs more or less moldy."

"The bunch of bees bought of —— last year were very strong; only 2 gone out of 53, and one of these was queenless. I recall now that on account of being very busy I did not get these bees until late, to take them out of packing May 14.



FIG. 2.—Anderson's north yard, showing bees packed for winter.



FIG. 3.—J. J. Anderson's straw-covered rows of hives.

I cannot account for the secret of this splendid wintering unless it was staying in packing until so late."

These were packed in straw, as outlined above. Hereafter a few fine days shall not inveigle me into unpacking. I shall be in no hurry.

Next spring I shall again furnish your readers with the results of my experience during the coming winter.

On January last, on his western trip I was delighted with a visit from our friend Ernest. He took a number of views illustrating the methods I was trying. The cellar wintering he pronounced perfect.

Salem, Idaho.

[As Mr. Anderson states, we called on him during the month of January, and had the privilege of seeing not only bees in the cellar, but those at the outyards packed according to the methods above described. The bees in the cellar at the time of our visit seemed to be in remarkably nice condition (see Fig. 1). At that time we took the picture looking into



FIG. 4.—The windbreak on the south along the irrigation ditch.

the doorway. There was nothing to indicate that the bees in hives with bottoms were not doing as well as those with the bottoms removed. We explained to Mr. Anderson that there were two schools—the one advocating leaving the bottoms off and the other leaving them on, and that we should be interested in knowing which lot of bees in the whole number came out better. He tells us that those without bottoms were much quieter. The cellar was comparatively small for the number of bees in it, and we are not surprised that the bottomless hives showed up better in the spring. But where the cellar is relatively larger, it has been our experience and observation that the colonies with bottoms come out in better condition. We had an experience one winter in one of our cellars where the colonies with bottoms on were the only ones that wintered well, while those without bottoms showed a heavy loss of bees, many colonies dying outright before they were taken out of the cellar. It follows, therefore, that the question of whether bottoms shall or shall not be used on hives depends on the size of the cellar, the temperature, and the number of colonies wintered. We should say that, with a cellar 10 x 15, and 8 feet high, the bottoms had better be left off if as many as 100 colonies are put in. With half that number we would leave the bottoms on.



FIG. 5.—Mr. Anderson himself and some of his colonies packed in Holtermann winter cases.

On arriving at the north yard with Mr. Anderson we were very much interested in the different methods of packing. These experiments on so large a scale would be invaluable as the sequel has proved. We expressed to him the opinion that those in big quadruple cases of the Holtermann type would fare the best, and they did. When we came to look at the colonies that were heeled in, with upper entrances through the edge of the escape-board at the top, we were surprised and interested (see Fig. 6). We expressed a fear that the hot air at the top of the cluster would escape too easily through the top entrance, for it should be understood that the lower part of the hive up about two-thirds of the way was heeled in with dirt and packing. This, of course, closed the regular lower entrances. The fact that there was a heavy loss in this group was not surprising. Still, the loss was not nearly as large as we thought it would be; for it seems to be a fundamental principle that hive entrances for colonies in winter quarters should be at the bottom, primarily to hold the warmer stratum of air that naturally rises to the top, and is confined because it cannot escape.

The group of hives that were placed in long rows back to back we thought ought to winter nearly as well as those in Holtermann cases. See Figs. 3 and 4. There is one objection to this plan, and that is, bees in long rows are inclined to drift. When the weather is such that they can fly, and

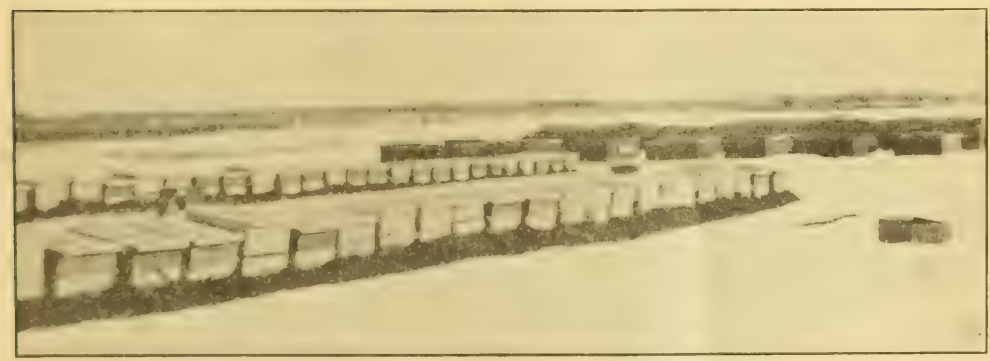


FIG. 6.—The hives that were heeled in with dirt; entrances at top.

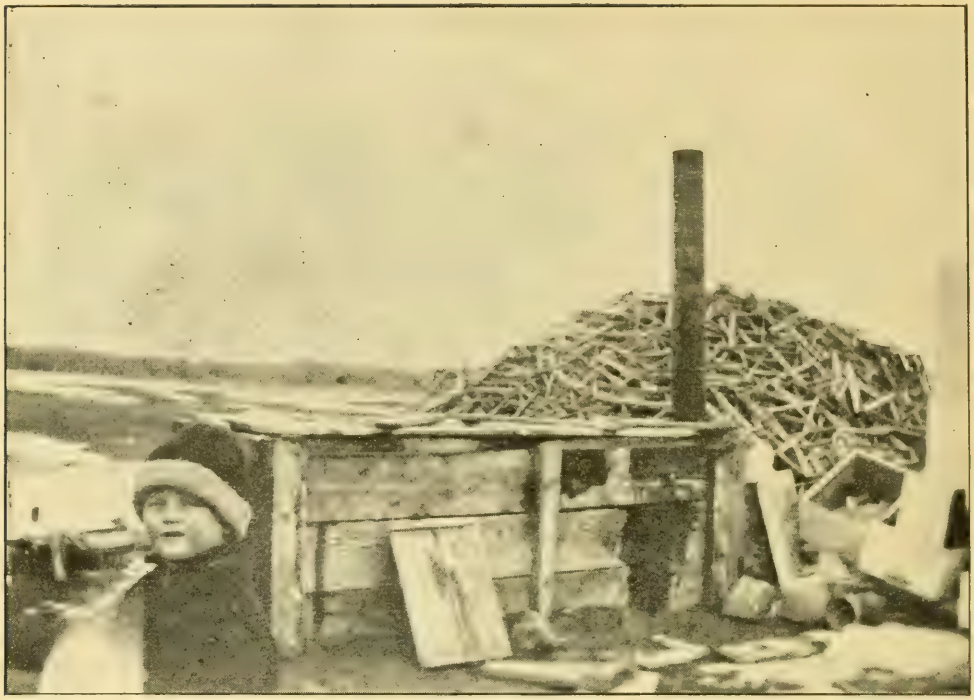


FIG. 7.—Anderson's wax-rendering boiler, and the frames that had been put through the boiler to free them of foul-broody combs.

when bees will come out by the thousands those entrances where there is the greatest commotion will draw from the other entrances that make no demonstration. This has been the experience of many beekeepers.

We took a number of photographs as shown from 1 to 7. Fig. 1 shows a view looking into the doorway at the home cellar; but only the hives, of course, in the foreground can be seen.

Fig. 2 shows colonies in the middle background packed in the Holtermann winter cases.

Fig. 3 shows those colonies that were packed in long rows back to back and close together, covered with loose straw and brush over all to hold the straw down. Mr. J. J. Anderson is seen in the foreground.

Fig. 4 shows a more distant view of the hives packed in long rows with the honey-house and the windbreak of trees on the south along the irrigating-ditch in the foreground.

In Fig. 5 Mr. Anderson is again seen sitting on one of the winter cases.

In Fig. 6 we have the group of hives that were heeled in at the bottom with upper entrances. It will be remembered that this group showed up the poorest of any.

In Fig. 7 we have an exhibit that perhaps no one of our subscribers desires to have. The pile of brood-frames in the right background originally contained combs taken from diseased colonies. The structure in the foreground contains a large flat boiler heated by an arch from beneath. The smokestack in the rear furnishes the necessary draft. The little boy in the foreground is one of Mr. Anderson's children.

Mr. Anderson made no concealment of the fact that he had had American foul brood; but the pile of frames showed that he must have had a "big dose" of it, and, what is more, that he had gone at it heroically to clean it up. He believed he had done a clean job.

This large boiler was used for melting the combs; and when the combs were free the frames were thrown on this pile after being immersed in hot water. With all the honey and wax removed, there would be practically no danger of further infection. Many of the frames were damaged, others were odds and ends, and he was not sure whether it would pay him to use them again or not. He was inclined to think he would not take the chance. While they were harmless in the pile, there might be danger if new combs were built into them again.

The winter weather in Idaho seems to be like that of Ohio—climate drier.—ED.]



My home apiary depends on the flora of the marshes for surplus. We have several hundred acres in this locality, which in favorable years yield a heavy flow. In 1913 my crop was 382 lbs. per colony, nearly all from the burr marigold.—WILLIAM WESTON, Essington, Pa

HOME-MADE VS. FACTORY-MADE HIVES

BY LEWIS L. WINSHIP

The question of home-made vs. factory-made hives has been discussed pro and con until it would seem highly improbable that more remains to be said. Such does not seem to be the case; and the more said, the more remains to be said. In years to come, there is some chance that this question will be settled once and for all.

To my way of thinking it might as well have been settled years ago. There is only one conclusion to which a fair-minded thinker can come; and that thinker, when he comes to a conclusion, will want factory-made hives. The average home-made hives are fit for nothing so much as kindling-wood. For this they are excellent, as the coating of propolis on them saves kerosene. If you happen to be a representative of that class of noble and high-minded men, viz., bee inspectors, I know you will quite agree with me.

I am speaking on good authority, as last spring I took three hives (if you can call them by that name) of bees on shares. I was to have all the increase and half of all the marketable honey secured. The man from whom they were taken was a nursery-stock agent; and so, when the busy season for the bees was on, he was also busy with his nursery stock. He spent his time in the winter making new hives and, when prosperous, had many colonies of bees. But as time passed his bees dwindled down to the three colonies as bees will whose owners make their own hives. Now, do not think that I mean no beekeeper can make hives as good as the factory-made article, because some few of them can; but (and here is the "rub") they usually try to economize in every possible way; and the hive when finished usually looks like the one in the illustration.

Beekeepers seldom try to make frames, as they know that the factory-made article is far superior to their best efforts. But this man was one of a reckless few. He may have thought he could do it, but he could not make me agree with him. Every one is prone to believe that he can do any thing better than the other fellow; but it is rare that the other fellow agrees with him. The probable reason for the delusion was that he never opened a hive, and so could not see why his frames were not as good as those factory-made. Why, this man was even feeding his bees dry sugar in a little saucer above the frames in April, and wondering where the honey was coming from, as they were not using any of the sugar. He did not stop to think that there were blossoms all over God's green earth, all of which were abundantly yielding nectar.

Starting with the cover I shall describe one of his hives similar to the one in the photograph. You can see that the structure is made of a drygoods-box, and that one corner of the cover is at least three inches lower than any of the others. When the sun shines very bright and hot, the cover serves to some extent as a shade-board; but, oh my! when the first rainstorm struck it I came near taking it into the house for a sieve. The water poured in torrents between the combs, and the poor little bees were washed out the entrance. The first thing I did after the shower was to put tin over all three of the covers and paint them two coats, to prevent a similar disaster.



The hive was made from a drygoods-box.

The super was one of the greatest pieces of ingenious mechanism I have ever had the sorrow to look upon. A Philadelphia lawyer could not place empty sections in it. I did not attempt such a hazardous job, but set a factory-made super in its place. Even if a lawyer could have put sections into it, a preacher would most certainly have discharged a volley of oaths if he had had to remove the sections when they were full of honey.

The brood-chamber, if it may be given that name, was more a nursery for worthless drones; and if the hive were mine it would certainly have been used for kindling-wood, and the bees transferred into an up-to-date factory-made hive. The frames were

all built one way of the hive; but through his trying to economize on foundation the combs were built this way and that, making it practically impossible to remove one frame without removing them all. The lumber probably cost as much as would a whole new factory-made hive. As you will notice in the illustration, the maker strived to have his hives easy to handle by grooving out blocks and nailing them to the body.

It must have taken him at least a day to make a hive. Valuing his time at even two dollars a day, which is a very conservative estimate, and figuring the cost of the lumber at par, you can very easily see that it would have paid him well to purchase his hives from some reliable manufacturer. I have not mentioned the gratification one feels on opening a factory-made hive and seeing how every part fits. After using them side by side for two years, one appreciates the factory-made hive more and more.

You beekeepers all know that it is not so much the amount of brood-comb in a hive that counts, but the amount of worker comb. To get all or nearly all worker comb in a hive you must use full sheets of foundation or else get your bees to working on starters at just the right time of year. Few beekeepers know just when this time is, and therefore it behooves us to use full sheets of foundation and not risk getting a lot of useless drone comb in our hives.

To all beekeepers who will persist in making their own hives, let me say, buy your frames and use full sheets of foundation. With lumber as high as it is now, it hardly pays a would-be carpenter to experiment with it. The hive shown, with the exception of the cover, is better than the usual run of home-made hives, and you must be quite a carpenter to make one as good. I would as soon get a full-blooded horse or cow and put it in a shack, every crack of which you could throw a cat through, as to put bees into ninety per cent of the home-made hives.

When purchasing your hives be sure to get those having a metal roof—that is, if you live in a climate as severe as that of western New York. If I have not persuaded you to purchase factory-made hives instead of making your own, a glance at the photograph will at once cause you to make up your mind.

Springville, N. Y.

A COTSWOLD VILLAGE; GLIMPSING OLD-TIME BEEKEEPING IN RURAL ENGLAND

BY A. H. BOWEN

There is nothing more soothing than the languid content that broods over an old-fashioned garden plot in a Cotswold village, with its careless order and unsystematic arrangement. It is all the more beautiful because everything is allowed to flourish in its own sweet way, and the colors blend one with another in perfect harmony. It is here, too, that the old straw skep abounds, and where bee lore and quaint customs survive among the simple village folk.

As September wanes, the bee-master pre-



A corner of a typical Cotswold skep apiary. Three stocks gave eleven swarms, "casts and lobs," and made the owner justly proud of his extensive apiary.



Straw hackles keep the hives cool in summer and warm in winter.

pares to gather from his unpaid laborers the result of their summer's toil among the blossoms. The annual honey harvest is a welcome and looked-for pleasure to all who keep bees in the old-time way, and the skep supplies yearly a quantity of delicious honey that is carefully kept for use in the long winter months. The time was when this yearly looting of the little brown workmen was a much more serious matter than now. Before the sugar-cane was domesticated from the wild weed, and the various other sources of sugar had been utilized it was upon the village skeppist that the community relied for its sweet. It is pleasant to visit a Cotswold bee-garden at this time of the year.

Nestling in a quiet corner overhung with lilac bushes could be seen an irregular row of a dozen hives, each on a stool of its own, with a covering or thatch of straw hackle, clipped away at the entrance, and surmounted by an iron hoop to keep it rigidly in place. If in a talkative mood the owner might be induced to explain which lots were the prime or first swarms that "ring out" for a week in a mass from the entrance, and finally swarmed on a hot sabbath morning; or of the nimble "cuts" that came out and returned several times before they allowed themselves to be captured and placed on a stool to commence for themselves "the daily round and common task" of collecting honey.



A cottage off the village street. It has been inhabited by its present owner and father before him for nearly 75 years. The rental of this, a productive garden, pig-styes, and potato-shed, is three pounds a year ($14.55), an amount the owner considers very dear.



A progressive Cotswold garden apiary. Notice that the owner has launched out into a few modern hives, homemade but serviceable, from which good returns of honey are obtained.

the sulphurous flame burns brightly the heaviest hives are lifted over and earth thrown against their sides to keep in the fumes. A sudden fearsome buzzing arises from the skep; but it is gradually hushed to a deathlike stillness as the deadly sulphur smoke does its work of destruction.

Then the honey is set a-dripping over a pan in the cool larder, where the wasps cannot infest. When all runs out the crushed honeycombs are washed to make a cask of methheglin and then rendered down into wax. Taking-time reduces the hives to half the summer number, and each lot would be carefully plastered to its stool with mortar as a winter precaution against mice that might creep in when the bees were dormant.

Whether the bees are suffocated or got from their hives by the more humane practice of driving, it matters not to the villager who leaves the whys and wherefores to wiser heads than his own, knowing only sufficient to make the humble skep a source of income.

Cheltenham, England.

And so the months of summer would go by until, with the arrival of September, the bee-master would prepare to gather "the fruits in their season." In the crimson gloaming of late evening might be seen a dusky figure moving among the hives. It is the beeman "hefting" his skeps, and marking those which shall be "taken up," and these, too, that must remain to provide swarms next season. Next he digs a shallow pit near by; then a piece of brown paper thickly plastered with brimstone is let in the cleft of a small stick stuck at the bottom of the hole, and lighted, and as the

J. Y. DETWILER

BY E. R. ROOT

Down in Florida, at New Smyrna, is a man named J. Y. Detwiler—the only J. Y. Detwiler in the world, for the simple reason that there could not be another. He is one of the most unique characters that one ever meets. As he says of himself, he is an "everlasting talker;" but his talk is not idle nor without pith, point, and ready wit. It is as good as a circus to hear him talk as he draws on his wonderful fund of information.

A beekeeper? Yes, for many years away back in Toledo, where he formerly lived. An orange-grower? Yes, he knows all about the business. A landowner and real-estate agent? He knows every angle of that line, and can talk interestingly to you about good and poor lands in Florida for hours at a time. Fish and game? Yes, he knows about all the animals that walk, creep, or swim in that south land. He is, or was at the time of my visit there, two or three years ago, the game and fish commissioner of Florida. That he would make a good commissioner—one who would enforce the law to the very letter—can be plainly seen in that strong face and the tightly drawn lips that seem to bespeak "You obey the law or take the consequences."

Mr. Detwiler is so well known that an artist or sculptor, seeing that face, said, "Oh! here I have a model;" and he set to work to reproduce the original in clay. We secured a photograph, and the picture before you shows the only J. Y. Detwiler who ever lived or ever will live—the loquacious

irrepressible Detwiler. A photograph of the living subject could not be more accurate than this model in clay, for it shows the man at a single glance as he is.

I made Mr. Detwiler's acquaintance in Toledo some years ago when Dr. A. B. Mason was alive. The two were fast friends. One day at a bee convention Mr. Detwiler came in with a very crooked stick and said he wanted to present it as a souvenir to the venerable Dr. Mason, the presiding officer. He could "talk by the yard," but he could not make a "presentation speech." Then he asked Mr. Emerson E. Hasty "to do the job"—the same Hasty who delighted our readers some twenty and more years ago by his bright and breezy articles. Mr. Hasty jumped to his feet; and as he did so he said, "Do you want me to make a speech right on the spot?"

"Right on the spot," responded Mr. Detwiler.

As the former looked at the latter, and saw his rough exterior, he cast his eyes on the cane with all its knots and curves and crooks; and as he looked at the venerable president with a beaming smile, Mr. Hasty's face suddenly lighted up.

"Sir," said he, "I see in this cane some knots, some twists, and some curves; and I see in it strength and character. It has had some rough experiences. It is like the man who gave it, and it is like the man who receives it. Both are men whom I delight to honor. I thank you." Then he took his seat.

Some twenty years after this event, and when I had forgotten all about our old friend Detwiler, I ran across him at New Smyrna, Fla. I say "ran across" him. He had written that he hoped I would call and see him. That he entertained me by his continuous flow of words goes without saying.



Clay portrait bust of J. Y. Detwiler, of Florida.

A HOUSE BUILT BY THE BEEKEEPER, AND PAID FOR BY THE BEES

BY B. KEEP

Accounts of successful beekeeping as a livelihood are interesting and encouraging as showing the spirit of hopefulness and persistence which animates the real beekeeper. The real, simon-pure beekeeper should be classed with the natural-born inventor who always sees success ahead, and is sustained by hope and faith in his efforts until success rewards his labors.

It is not often that the liking for honey induces one to take up beekeeping; but Robert B. Spicer, of Wharton, N. J., confesses that his love of honey made a beekeeper of him—not at the first with any thought of making it his lifework; that came as a natural sequence.

Mr. Spicer grew up in the country where there are more boulders than tillable soil—in fact, in the iron-mining section of New Jersey, and soon found more profit in cultivating bees than stony hillsides. He has been at it now more than twenty years.

He has had his "ups and downs" too, having been entirely cleaned out by foul brood about ten years ago; but through that experience most valuable knowledge was gained by which he has since been able to keep his bees free of diseases to the present time. He was able to save most of his equipment, and has hive bodies still in use which were disinfected with a blow torch at that time—the disinfection being evidently entirely effective.

Mr. Spicer has been engaged during the last six years in raising queens, and is about the only beekeeper of this state large-



Spicer built it himself, cellar to gable, and—

home. That's a genuine fact for he personally built it, from digging the cellar, mixing and laying the concrete for the wall, felling timber for the frame and hauling it to a sawmill, to plastering the walls and putting on the trim. Mr. Spicer admits he had his hands full in those days, raising queens and building a house between times. But "all's well that ends well." The young people have a comfortable home overlooking the hills and valleys of northern Jersey. The home has been paid for practically by the bees, which they prize more dearly than if it had been "showered" upon them.

ly in the business. This specialization is also the result of circumstances. At first he raised queens for his own use only; but, having a small surplus, he placed a two-line advertisement, which soon brought a demand which required so much of his time that he finally turned his attention to queen-raising exclusively.

Well, not "exclusively," for he took time to get married, and then began to build a

In July last year the New Jersey State Beekeepers' Association held its summer meeting at Mr. Spicer's yard, to which about eighty people found the way, although it is two miles from the trolley up among the hills. They enjoyed a practical day with Mr. Spicer among the bees, not forgetting the generous hospitality.



the bees paid for it.

Speaking of hills always brings to mind springs, and just now the spring where the Spicer household gets water. There are large stones (there is one near there the size of a load of hay) about the sides of the spring, and grasses and bushes. A great maple has its roots just behind; and to complete the setting there are always three solemn frogs sitting guard ready to "plunk" unexpectedly, and make one start.

The little poem by Secretary of Labor Wilson describes it so aptly that a quotation of the opening verse may be allowable. The title is, "To an Old Tin Can."

There's a spring of sparkling water flowing out beneath the hill,
Where the trees are tall and shady, and the robins sport at will,
As the breezes, soft and pleasant, in the summer's sultry heat,
Play about in cooling eddies where the light and shadows meet,
On a stone within those shadows stands a can of ancient tin,
With a band of rust about it and a coat of rust within;
And there's nothing God has given to appease the thirst of man
Like a cooling draught of water from that rusty old tin can.

Hoboken, N. J.

SOME INVENTIONS MOTHERED BY NECESSITY

BY A. BUTSCH

After living twenty-one years in the West Indies (just half my life) I can do but little hard work myself. The result is that most of the work must be done by ordinary laborers; and a more awkward and careless set of fellows it would be difficult to imagine. None in the lot can read or write; none of them knows his age. Their perception of right and wrong is about on a level with that of a well-bred fox terrier. With such help at hand, and with the inability of a European to do much hard work, beekeeping on a large scale becomes quite a problem.

Frail devices such as Hoffman frames, Bingham smokers, etc., which in gentler hands work nicely would here crumble away like match-sticks. Even the Cowan automatic had to be overhauled before it could stand the test.

The Hoffman frames were the first I used. They proved too weak. Either the frame came out without the bottom-bar, or the supporting projections or spacing devices would give way. In many cases where a brood-nest had not been taken to pieces for two years I found no other means of getting the frames out than to turn the brood-nest upside down and kick the whole arrangement out "en bloc."

The staple-spaced frames came out a little easier; but the staples are an abomination when extracting. With eight frames in a super the combs get quite thick, and the staples hidden in the honey play havoc with the extracting-knife. If one is prepared to carry a grindstone around in his out-apiaries, and to keep his temper, he may get along with staple-spaced frames; but I think the average beekeeper who extracts between fifteen and twenty tons of honey a year, and means to go to heaven at the end of his laborious beekeeping days, had better leave the staples out of the business.

This is exactly what I did. To prevent the bottom-bars from pulling out, I made them 3/8 inch thick and nailed them between the end-bars. The spacing-devices were left out, and the supporting lugs were replaced by a 2½-inch wire nail. The top, bottom, and end bars were all made the same width, the top and bottom bars being nailed between the end-bars. Now there I had a frame that was extremely simple and quite solid.

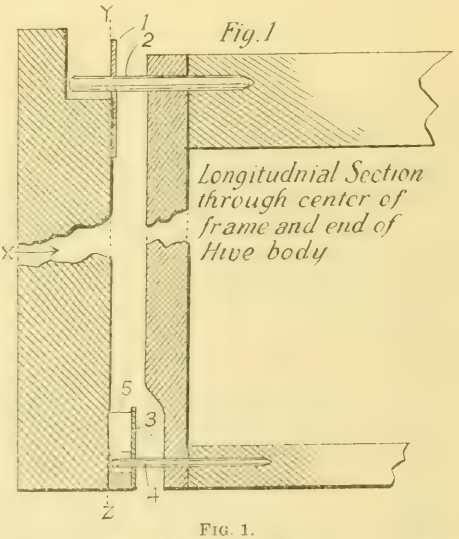


FIG. 1.

1, steel plate, 18 gauge, with top edge cut out as shown in Fig. 2, supporting the frames and side-spacing the top-bars; 2, steel pivots supporting frames; 3, steel plate, 18-gauge, cut out the same as 1, but with a notch at 7; 4, steel pivots for end-spacing frames and side-spacing top-bars; 5, wood strip 3/16 inch thick, holding steel plate 3 in position.

The trouble that now remained was how to space it. Notwithstanding the general

consensus of opinion expressed in the bee-papers I had come to the conclusion that for extracted honey, at any rate, the spacing-device should not be part of the frame, as any kind of spacing interfered with the ease and rapidity of uncapping.

Figs. 1 and 2 show how I got out of the difficulty. I intended at first to patent the arrangement; but although I have taken out several patents in gas and electrical engineering, and even had the rare luck of making some money out of them, I always look with some suspicion on the financial possibilities of a patent in beekeeping apparatus. The sketch sufficiently explains the device.

The frames are here simply thrown in the hives, and they will automatically space themselves. They can be picked out any time without tools. The top-bars can be pushed away from one another for the purpose of looking for brood or queen-cells without taking a frame out. There is practically no chance of killing any bees. These frames can be carted about quite as safely as Hoffman frames; and even with hives only partly filled with frames there is no necessity of doing any stowing away. The hive would cost a little more than the standard dovetailed, but the frames would be cheaper.

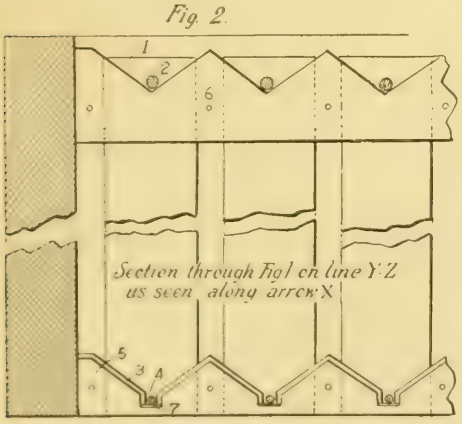
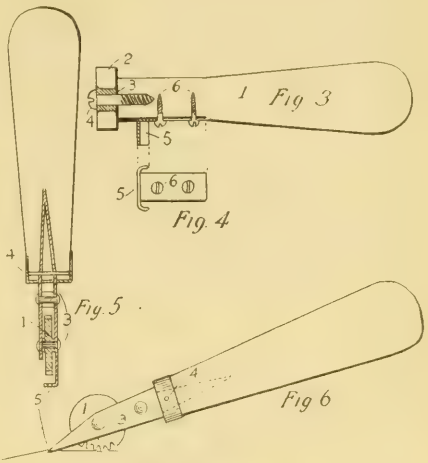


FIG. 2.

Nos. 1—5, same as for Fig. 1; 6, nail-holes; 6, deep notch in plate 3 and wood strip 5 for holding pivots.

The double groove and wedge proved too refined for West Indian labor. Besides, when the worms eat down the combs, as it often happens in out-apiaries, the wedge and thin strip are invariably eaten out, which makes it difficult to attach new foundation satisfactorily. With the roller shown in Fig. 3 the foundation can be very firmly attached to a plain top-bar in very quick time. The foundation must be slightly warmed in the sun before putting it in.

Even the ordinary spur imbedder had to be altered as shown in Figs. 5 and 6, where one of the side plates is prolonged and bent at right angles just in front of the wheel and a small notch filed out to guide the wire. With this implement wire can be



FIGS. 3 AND 4.

1, handle (hard wood); 2, wood roller; 3, babbitt metal; 4, steel screw; 5, brass guide; 6, brass screws for attaching guide.

FIGS. 5 AND 6.

1, brass spur-wheel ⅛ inch thick, ¾ inch diameter, 36 pitch; 2, side plate prolonged, and bent at right angle in point of wheel 1; 3 and 4, rivets; 5, small V notch for guilding wire.

expeditiously imbedded, even in the dark, as the roller cannot come off the wire. I use a very thick brass cogwheel with fine cogs without any set, thus firmly imbedding the wire without damaging the foundation.

For the last ten years I have made all my supplies, such as hives, frames, smokers, veil, foundation, shipping-cases, etc., and even an extractor. I own a small machine-shop with circular saws, engine-lathe, boring-machine, etc., with a fair supply of different boring and machine tools. The whole show is driven by a 2½ H. P. gasoline-engine.

It certainly pays to make foundation, whatever Arthur C. Miller may think. With what was worth 20 cents here, and light brood foundation at least 60 cents, there is a saving of $160 on the first 400 pounds of foundation made. It is true that, in the hands of many, the making of proper foundation is a tedious and unsatisfactory job. It takes some experience, and the instructions sent out with the machines are not worth much.

St. Lucia, West Indies.



THE WINTER CLUSTER

BY MARY G. PHILLIPS

Summer is gone, and the winter drops its mantle of snow
Gently from clouds of grayness to the dark-brown earth below.
Now beasts and furry creatures cease from their active play,
Hunt some quiet hollow where they snugly sleep all day.
Out by the leafless wood-lot stand the rows of quiet hives,
Mere undulating snow waves, hiding thousands of tiny lives.
How peaceful seem those houses! Are the inmates fast asleep?
Like other tiny creatures, is their dormant slumber deep?

Ah! under the snow-white blanket, all hidden from prying eyes,
Here life is teeming, bustling, in the row of quiet hives!
The bees are compactly clustered forming their winter sphere,
The outside ring is their vanguard to guard against cold severe.
Each faithful little worker stands at her meted task,
Fanning, fanning her life out to combat the icy blast.
Now one leaves the circle to seek the honey store,
Gathers strength and courage, then back to her work once more.

Brave little honey-workers! Beat, oh beat with all your might!
Warm the hive and your comrades, it is not always night;
The creeping chill will vanish, the sweeping wind will die;
Spring will come with its sunlight! Have courage, then you may fly!

Washington, D. C.



The first three hives (right to left) are cell-builders; the fourth a honey-producer, and the fifth a mating-box.

BUILDING UP A BUSINESS IN SHIPPING BEES WITHOUT COMBS

Will Wintering Bees Become Obsolete in the Extreme North?

BY W. D. ACHORD

About four years ago I began to ship one-pound packages of bees without queens by April 1, and with queens by April 10. I find that this size of package is best as early as weather in the North will permit the buyer to receive them. The first year or two we had considerable loss at times; but last year it was only about 4 per cent or less, while this year it was less than 2 per cent for the entire year. We make our own cages and candy in a way which we find is good for the two extreme conditions—the heat here in April and cold in the North. Perhaps half of these packages go into Canada and all of them north of the Mason and Dixon line.



Two sticks, one black and one white, turned in various directions constitute a record for each mating-box.

Judging from reports from buyers I feel quite sure the one-pound package from the South, early in the season, is the most

profitable way for the northern honey-producer to get his bees. A one-pound colony purchased early, and put on combs and honey, will probably give him, that season, as much honey as the average colony he has wintered over. You see these one-pound packages consist of young worker bees and a young queen, and consequently they are not subject to spring dwindling.

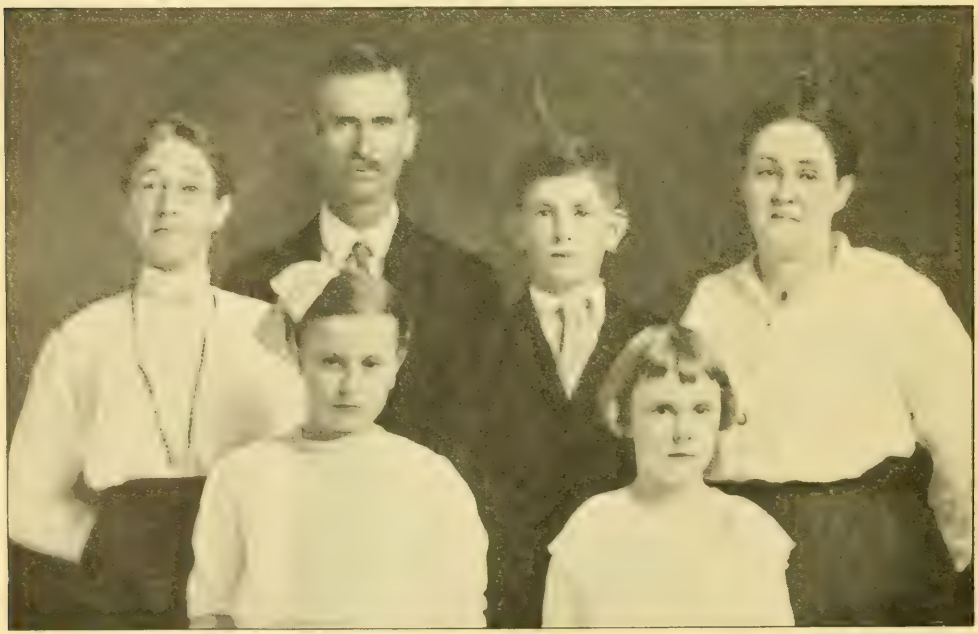
I predict that soon the honey-producer in the extreme north will sulphur his bees in the autumn, and thereby save honey and combs to run one-pound colonies on early in spring. Of course, he can strengthen his weak colonies in early spring with young bees without queens from the South if he dislikes to kill his bees in autumn. He can also use these early swarms from the South to make increase which will give a good surplus the first year. The express charges are from 20 to 40 cents each, depending on quantity and distance.

In 1901 I shipped bees up river into Georgia in June, this being the beginning of migratory beekeeping on this river. In June, 1907, I shipped 300 colonies of bees to Fitzpatrick, Ala. Finding this a good locality for queen-rearing I offered queens for sale. Since then I find that most of the time I have orders for all we can rear.

We now have seven yards in which are a few more than 700 full-sized colonies for the production of bees and honey. We also run about 600 mating-boxes in the spring—some less the latter part of the season.



A small swarm from a mating-box took up quarters in a pine tree twelve feet above ground. Sealed brood could be seen without molesting the bees.



Yankee mother-in-law, southern husband, Ohio wife, and hybrid children.

Our honey-flow begins about June 10. Our colonies in two-story hives are about ready to swarm the last of March. It is very hard work then to prevent swarming and increase. This, you will notice, is about 70 days before our honey-flow.

Each year I have made enough money to pay my expenses, including those of the family. When I have had short crops I manage to get a higher price per pound than when the crop is large.

In 1899 I went into the bee business exclusively on the Apalachicola River, Florida. Prior to that I was a city man. With a so-called practical men as partner, the first year I lost about $1000. I then bought the other man's interest and found I had about 200 colonies and a lot of empty hives, etc., including a debt of about $220.

Fitzpatrick, Ala.

[A picture of Mr. Achord's pound package appears on page 981, Nov. 1, and his advertisement elsewhere this issue.—ED.]

PANHANDLE BEE-PEOPLE TALK IT OVER

BY JOHN RUDE

The Panhandle Beekeepers' Association of Southeastern Ohio and Northern West Virginia, held its semi-annual meeting in the shape of a field meet at "The Lindens," the home of L. C. Seabright, vice-president of the association. To say the meeting was a success is putting it very mildly.

The Lindens is a most beautiful place, situated at Blaine, Ohio, five miles west of Wheeling, W. Va., along the National Boulevard, and is reached by electric car. Mr. Seabright's bees are the yellowest and most gentle I ever saw. Forty-five colonies are all in eleven-frame Langstroth hives of his own design and manufacture. The hives are well made, and have been in use for thirty-five years. They are practically a double-walled chaff hive, or, better still, a convertible chaff hive, as the ends are chaff packed, and for winter use there is a chaff division-board inserted on each side, four frames being removed. The hives are kept neatly painted and a grapevine grows beside each hive for shade. A well-equipped honey-house and a few fruit-trees comprise the place where beekeepers like to gather.

Crop reports were very poor, but every one reported plenty of swarming. The meeting was short, as the members preferred to move about among the bees, getting acquainted.

Bellaire, Ohio.



There was not one grouch on the place



Nailing up supers and shallow frames. See Beekeeping in the Southwest, this issue.

THE OHIO STATE BEEKEEPERS' CONVENTION AT AKRON, NOV. 26, 27

BY E. R. ROOT

While the attendance at this convention was not large (not over fifty being present at any one time), it was a representative one, and the discussions were above the average. In the afternoon of the first day the members were piloted through the B. F. Goodrich establishment, the largest rubber-plant in the world—a plant that has 15,000 employees. All who went through expressed themselves as feeling that this was one of the greatest treats of their lives. To see rubber tires for automobiles and bicycles, rubber coats, rubber shoes, and other rubber specialties made, the thousands of workmen like a well-drilled army was indeed a sight. This immense concern opens its doors to the public, and the public is given an insight as to the possibilities that can be accomplished through a great organization.

The first regular session was in the evening, presided over by Mr. Fred Leininger, president. In his address at the opening he called attention to the fact that we were meeting in one of the greatest states in the Union—a state which contains some of the best beekeepers in the world; a state that has the largest bee-supply manufactory in the country if not in the world; a state that sends out more queens than any other in the Union. While he admitted that the attendance that evening was not as large as that of some meetings in other states, he felt that it represented a large number of colonies of bees. He spoke of the benefits of organization and co-operation; of the importance of getting a better price for our product. The fact that we are not getting better prices he felt was due to the fault of the beekeepers themselves.

He then called on N. E. Shaw, chief inspector of apiaries, Columbus, Ohio, who gave an address on the condition of bee diseases in Ohio. When he first began this work he was somewhat discouraged. Foul brood had taken a tremendous hold, and the task of mitigating its ravages seemed well nigh hopeless; but he was glad to report that many localities that were formerly rotten with the disease were now practically free from it. In many others the disease was becoming less and less prevalent, and it was evident that it would all be cleaned up in the near future.

The report for the year showed a decided gain for the better. About 8000 colonies were inspected last year at an average of 24 cents a colony. This figure, according to Dr. Phillips, who was present, was about normal.

Some discussion followed, after which Dr. Phillips, of the Department of Agriculture, Washington, gave an address on the temperature of the honeybee cluster during winter. He elaborated on the statements he made in bulletin No. 93, a review of which appeared on page 879 of our issue for Nov. 15, 1915.

I will not attempt at this time to give a *résumé*, as the reference given above is much fuller than anything I can give here.

Dr. Phillips was followed by Attorney Melville Hays, of Wilmington, on the subject of bee legislation. Mr. Hays stated that his neighborhood has been having bee diseases ever since a carload of honey was shipped in. To prevent a recurrence of that kind he proposed some advanced legislation. He would require among other things that the consumer burn or disinfect all packages or containers as soon as emptied of honey. He went on to state that when these packages go out on the scrap-heap the bees in the vicinity carry honey that is infected to their hives. He would place authority in the hands of the State Board of Agriculture and give it sufficient power to enforce its provisions.

Most of the beekeepers after the adjournment of the session (it was too late that evening to enter into a general discussion) expressed themselves as feeling that it would be impossible to get through such advanced legislation, and they doubted the wisdom of some of it, because the section requiring the burning or disinfection of packages containing honey would convey to the consumer the impression that such honey was full of germs dangerous even to human beings. Many of them felt that, in view of the difficulty of getting such a law on the statute-books, the present law was quite adequate.

In the morning session the next day Mr. F. W. Summerfield, of Toledo, led off on the subject of migratory beekeeping. Mr. S. is a retired merchant who devotes most of his time to the production of honey during the summer in and near Toledo, and during winter on the Apalachicola River, Florida, a few miles above the famous Marchant location. Mr. Summerfield, who has had a wide experience in moving bees back and forth in car lots, spoke of some of the pleasures and penalties in bringing bees back and forth in car lots. So far he had not made a very great success of it, owing to poor seasons; but neither had he made a complete failure of it. He spoke of the difficulties and cost of wintering bees in the North. He eliminated this by moving his bees south, building them up, taking a crop of tupelo honey and bringing them back north in two-story colonies. He shipped all his colonies upside down, thus leaving the heavy part of the frames containing the stores against the top-bars now on the bottom. As the bottom-bars now at the top are narrower it gives the bees more room up for clustering.

Mr. Summerfield estimated the cost of taking the bees down and back again, including his own time, at $2.70 per colony. With ordinary seasons such as are experienced in Apalachicola, and a normal season in Ohio, he felt he could make a good thing of this kind of migratory beekeeping. He doubted very much, though, whether any one could hire some one else to do this and make it pay. In any event, with him he could afford to operate at a loss, as he does not now have to depend on the earnings of the bees to give him a living. The main thing he was after was health and recreation, which he had secured in large doses.

Mr. Summerfield was followed by Mr. F. S. Snook, of the traffic department of the Erie Railroad, Akron, on the subject of shipping honey. Besides being one of the prominent railway men on his line, he is also a beekeeper, and hence he was able to appreciate the problem from the standpoint of the shipper as well as of the carrier. He made it very clear that the policy of his and all railroads, in fact, was to deal fairly with the public; but the public often disregarded the instructions on how to ship commodities, and the average beekeeper was no better. Carelessness in packing has a tendency to advance freight rates. He urged all beekeepers who ship comb honey to ship in carriers of not less than 200 lbs. Smaller shipments, if improperly packed, are very likely to go through in bad order, with the result that a claim would be forthcoming to him for adjustment. There had been comparatively little trouble, he said, from the large shippers of either comb or extracted honey. Most of the claims come from the small producers who have the impression that the railways are soulless corporations that do not care whether the honey is smashed and broken or not. Mr. Snook's address was one that ought to be delivered before the National Beekeepers' Association, and that organization would do well to get a paper from him. It is not often that a railroad man is also a beekeeper.

In the afternoon, Inspector A. C. Ames, of Peninsula, O., in the absence of D. H. Morris, gave a brief report of the exhibit that was made under the auspices of the

Ohio State Beekeepers' Association at the State Fair. He was not able to give definite data, because Mr. Morris, who is now in Cuba, had all the facts and figures.

As a foul-brood inspector he called particular attention to the carelessness of some good beekeepers in the matter of treating foul brood. One man in particular had been melting up his combs in a leaky solar wax-extractor, and wondered why the disease kept spreading through his apiary. Others had been careless in the way they exposed their combs. There was just one thing in the law that he thought ought to be amended, and that was a section that would give the inspector police powers to compel a beekeeper to transfer his bees into movable-frame hives. So far no special difficulty had been experienced; but the time might come when such authority would be required.

Dr. E. F. Phillips closed with an address on outdoor wintering. He read from his bulletin No. 695, "Outdoor Wintering of Bees," a review of which was given on page 876 of our issue for November 1st. Copies of these bulletins were distributed among the members.

The election of officers resulted as follows: President, Fred Leininger, Delphos; Vice-president, A. C. Ames, Peninsula; Secretary, Dr. Ernest H. Kohn, Clover Hill, O.

THE HOME-BUILT TRACTOR

BY XENO W. PUTNAM

[On account of illness Mr. Putnam was unable to complete promptly his series of three articles on the Home-built Tractor, the second of which appeared in the first September number.]

A 36-inch drive-wheel moves ahead about eleven and one-third feet for each revolution on the axle. Twenty-five revolutions per minute rolls it forward at the rate of something over three miles per hour. This is quite fast enough for ordinary work around an apiary. If an occasional trip to an out-apiary is necessary this speed may be increased either by increasing the size of any driving-pinion or by diminishing that of any gear-wheel which it drives. Under nearly all circumstances, lower rather than higher speed is needed, because the sudden pitching of a tractor over rough places, added to the continuous vibration caused by the engine, is hard enough at best upon both engine and tractor.

Let us assume that the normal speed of our engine-shaft shown at A, Fig. 1, is 600 revolutions per minute. In the process of transferring this motion to the tractor drive-wheels at H, the revolutions must be reduced to twenty-five or less. An 8-inch sprocket wheel on the engine, belted to a 24-inch wheel on the countershaft B, would bring this speed down to 200 revolutions per minute, because the smaller driving-sprocket would have to make three revolutions in order to drive the larger wheel through one of its 24-inch revolutions. Our countershaft at B, then, to which the 24-inch sprocket is securely keyed and all that is secured to it along any portion of its length, revolves 200 times per minute.

Between the two sides of the tractor frame we will mount a small gear-pinion on the countershaft. This meshes with the drive rim of the differential shown at C, which is three times as large as the pinion. For every three revolutions of the counter-shaft, or every nine of the engine-shaft, the differential revolves once—that is, about 66 times per minute, providing there is no lost motion through slippage. If the tractor is always to move forward, with no reversing gear, the counter-shaft pinion is keyed securely to the shaft. If we wish to provide

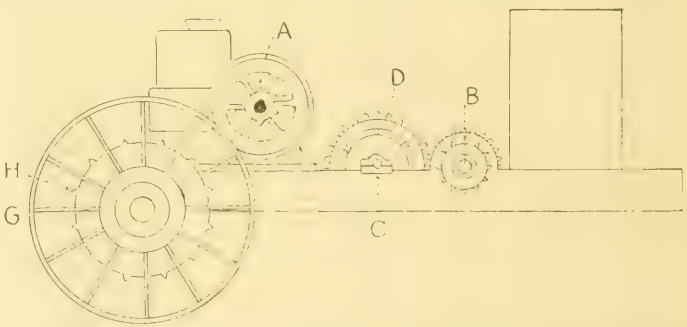


FIG. 1.—A, engine-shaft with 8-inch sprocket; B, counter-shaft with 24-inch sprocket and small gear-pinion at center of shaft; C, differential shaft with differential, D, between tractor-sills, and carrying small sprocket wheels (not shown in cut) at each end for belting to bull-sprocket H on the inside of drive-wheel G. Chain between A and B works just inside the chain from C to H between bull-drive chain and sill.

for backing the tractor, a keyway must be cut in the countershaft a little more than twice as long as the thickness of the pinion, and a smooth straight key set in securely, so there will be no play. The cutting may be done at home by means of a quarter-inch drill, the series of holes being carefully sunk in exact line for the required depth, and then dug and dressed out by means of a cold-chisel and small files. Drive the key in snugly its full length and then slip the pinion upon the shaft with the keyway dressed out to slide easily upon the key but without wabble. To the pinion must be attached a shift-gear collar such as can easily be secured from a mowing-machine or almost anything else with provision for shifting a gear-wheel. Frequently a pinion and collar cast together can be secured.



FIG. 2.

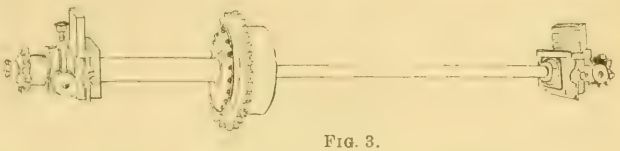


FIG. 3.

At each end of the differential shaft we now fit a sprocket-wheel that will work on a chain of the same number required for the bull-sprocket on the main drive-wheel of the tractor described in the last number of this series. Both of these small sprockets must be alike in size, and preferably both should be mates of the large sprockets in the same binders; then there will be no question about everything working properly and in absolute step. For instance, if we get our two drive-wheels out of two old Champion binders, and at the same time secure with each the small sprocket over which the drive-chains worked, we are sure of avoiding possible trouble through some little difference in the pitch of the two wheels. If these sprockets are one-third the size of the bull-sprockets we have our speed divided by three again, and so get the drive-wheel rate of revolution down to 22 per minute, which will be found fast enough. If the difference between this last pair of wheels is greater or less than three to one, we must vary one of the other pairs of gears a little to suit the occasion, unless we are able to change the speed of the engine or remodel our own ideals as to speed. In making any variations it should always be remembered that it is better to increase the size of the driven wheel rather than to decrease that of the driving pinion, because there is more tendency to cramp and bind in the smaller diameters of wheels. This rule holds good alike with gear and sprocket wheels, and, for heavy duty, the wheel that gets below twelve to fifteen teeth must be considered in the light of a necessary evil which should be avoided as much as can be without too greatly increasing the size of the larger wheels.

By connecting the sprocket-wheel on the engine with the countershaft by a chain, and attaching the two sprocket-wheels on the differential shaft to the two drive-wheels of the tractor in the same manner, we now have in Fig. 1 a tractor that would move forward in a straight line whenever the engine is running. To crank the engine, however, we would have to move the entire tractor, while there could be no gradual picking up by the engine of the load and no variation of speed. It would be almost impossible, too, to change direction, because both of the tractor drive-wheels would be driven forward directly from the engine at equal speed. We could not turn a corner without sliding the wheels, and would find the tractor very hard to handle on rough ground.

The differential permits one of the drive-wheels to turn faster than the other, and one of some sort should by all means be used. One from a worn-out steam-tractor is occasionally available at junk prices, though generally the differential is pretty well worn out by the time the rest of the rig is useless; also it is pretty heavy for a light tractor. At a very small cost an automobile differential of some sort can generally be obtained of any garage or second-hand automobile shop, though often these are pretty well worn. They answer quite well, when in fair repair, for a tractor up to about ten-horse power. The entire shaft should be purchased together, and mounted in the place shown for the differential shaft, and then cut to length. Probably a sprocket-wheel will have to be substituted for the gear-pinion on the counter-shaft, and a chain-drive be used between the latter and the differential.

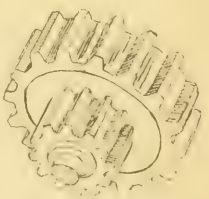


FIG. 4.—This double-gear wheel turns upon its shaft, which need not turn. The relative speed of the forward and reverse motion of the tractor depends upon the relative size of the two members.

There is a complete and very fine differential set on the market which may be purchased new for about $18. Very small tractors made with mowing-machine drive-wheels may be provided with a fairly good differential by retaining the compensating gearing in the case about the hubs and reversing the wheels. The differential problem can also be gotten around by building a three-wheel tractor, with but one wheel behind, and that the drive-wheel. One good heavy binder-wheel gives a pretty good ground grip that will take a light tractor over most places about an apiary.

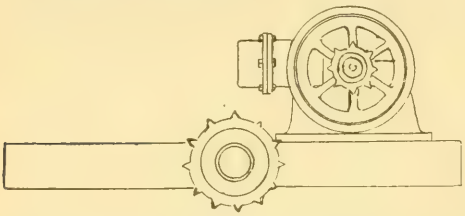


FIG. 5.—One of the two sprocket-wheels here shown should be replaced by a clutch-pulley, and the sprocket attached to the loose member of the pulley.

A regular tractor differential with gear-drive rim is shown at Fig. 2 and a sprocket drive differential at Fig. 3. The ends of the shaft upon which this is mounted project beyond the frame into line with the bull-sprocket wheel, and the small sprocket at the one end is keyed to the shaft and on the other to the sleeve which is a part of one bevel-gear wheel in the differential, and which runs loosely upon the shaft. Small tractors are sometimes built with drive-chain to but one of the bull-wheels. Then no differential is needed as the free wheel can do all the work of adjustment in turning. On rough ground, even though one gets into difficulty, if the one driving-wheel happens to drop into a hole, or where there is poor footing, its mate is not harnessed up to help it out. The single drive-wheel, too, unless placed in the center, puts a constant diagonal strain upon the whole tractor.

The reversing gear is simple—just a double gear-wheel shown in Fig. 4, and mounted loosely upon a shaft under the countershaft pinion with which its larger member meshes when the sliding pinion of the countershaft is slid to one side out of mesh with the differential drive. The small member of the double gear is constantly in mesh with the under side of the differential drive. When the countershaft drive-pinion is also in mesh with the differential it is out of mesh with the reverse gear, and the latter runs as an idler, receiving its motion from the differential through its small member. The differential then is running in the direction opposite from the countershaft, and the reverse gear turns in the opposite direction from the differential or the same direction as the countershaft pinion, which it does not touch. All meshing gear-wheels, it is to be remembered, run in directions opposite from each other. When the counter-shaft pinion is slid out of mesh with the differential, and into mesh with the larger member of the reverse gear, the latter is driven by it in the direction opposite from that of the pinion, and, in turn, through its smaller member, drives the differential in the direction opposite from itself or in the same direction as the countershaft. This reverses the direction of the tractor.

If there is a clutch-pulley on the engine, no other will be needed on the tractor, the drive-sprocket of the engine-shaft being secured to the loose member of the pulley. Then the clutch can be thrown out and the engine started in the usual manner; and, after it is running, the clutch can be gradually thrown in. Without a clutch on the engine one must be placed upon the countershaft, where the large sprocket is shown in Fig. 5, and the sprocket attached to the loose member of the clutch. A very good light clutch-pulley can be purchased for $10; or, if one does not wish to go to that expense, a belt drive can be substituted for the chain drive between engine and countershaft; then by means of a loose belt and tightener the load can be thrown off and picked up very nicely. This drive is not as sure in wet weather nor on bad roads nor under a heavy pull. Sometimes one avoids a breakdown by the hitch between load and engine not being too unyielding.

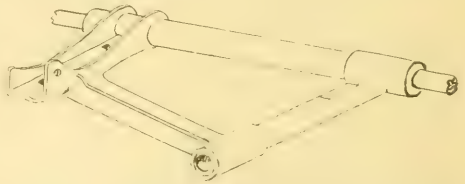


FIG. 6.—By using the old bolt-holes and bracing to frame of casting, an absolutely true and rigid set of bearings can be obtained.

The shafting for this tractor may all be found in old binders and mowers, as good as new. Nearly always the main shaft is 1½ inches. Where possible to accommodate the gearing to it, by all means retain the cast boxings and frame, or as much of them as is necessary to secure a good unyielding anchorage for the shafts. A frame such as shows at Fig. 6 may require a little more room but will not get out of alignment, and is easily secured to the tractor frame by means of the bolt-holes and the irregularities of form against which bracing can be

fitted. Some of this casting might be cut away with a hack-saw or file so as to accommodate the gear pinion and the long keyway without destroying the opportunities for fastening it to the frame. Often the success of the tractor depends quite as much upon correct alignment and perfect rigidity as on the selection of the parts and their general arrangement.

This completes the running members of the tractor, and leaves for another paper such conveniences as the steering gear, engine control, and a variety of necessary trimmings, together with a few words regarding some of the more useful special attachments needed upon the ideal tractor for the apiary.

Harmonsburg, Pa.

AN OFF YEAR IN CUBA

BY FRANK REIMANN

Conditions for several years have been unfavorable. Perhaps this accounts for no articles from Cuba. In the United States a real good crop is expected only once in twenty years. In Cuba it is about once in five years. For instance, 1500 hives of bees in an extra year will make 400 barrels of 50 gallons each. In a poor year they would make from 100 to 200 barrels a year. The smallest crop I had in ten years was 100 barrels. The cause of the poor years may be a dry summer or cold winter, or both. The last week of October and November were so cold that the bees made very little honey.

This summer where I had the majority of the beeyards it was very dry, only about five inches of rain fell. Sixty inches is not an extraordinary rainfall for Cuba for a year. I have only one beeyard that was in condition to make a full crop, and this will not be over three-fourths now, on account of the great drouth and cold.

Owing to the low price of extracted honey on account of the war, last winter I purchased 10,000 sections in the United States to raise comb honey this year. By this time I have been working in 250 supers, and I think these sections will be all completed by Christmas. Our main crop, campanilla, is now on. I am using three beeyards to fill these sections, whereas in a good season one yard would have filled them.

The strained honey has now advanced to 35 cts. a gallon, which is considered good business for Cuba. Our honey business in Cuba is almost entirely with Germany. Four years ago we had a very large crop with high prices. This induced quite a large number of natives to go into the business. Now with three bad years they all want to sell out, and I buy these bees at my own price. Their bees are near the mountain near Yara, where I shall be located in the future. My business between Cauto and Guamo I expect to sell or rent.

There is help in abundance here. In the honey season we extract one beeyard a day. I have one man to take the honey from the hives, one to take the honey into the house and bring the empty combs back; two women to uncap, one man at the extractor, one woman to cut out the drone or old combs, and one man to put the combs back in the hives. In this way we can extract a barrel an hour.

The beeyards have between 200 and 300 hives. I find that 300 hives should be the limit in one yard here. I pay the men $1.25 a day, and the women 50 cents.

The honey business is in a decline in Cuba. As a beekeeper makes his money from bees he finds other opportunities that will pay more money. For instance, in the cattle business a beekeeper can buy a cow here for $25 to $30. In a year he can raise a male calf which will bring $20, and a female will bring $15. In a few years we can have a very substantial way to make a living. I know various beekeepers who began here about fifteen years ago have now large cattle-ranches all paid for. Sugar-cane is getting the best of the beekeeper. Wherever a new sugar-mill is started the beekeeper must move on, as our principal source of honey is the woods.

A person intending to locate in a foreign country should pass some time with an expert beekeeper, because climates are different, and from the natives it is impossible to learn.

We have honey here all winter; but in the summer we have our bad seasons, and at the same time these bad months may give a surplus of honey. One beeyard gave twenty-two barrels last summer, and this summer he has made only two barrels.

I kept bees in different parts of the United States for twenty years, and had only two good seasons. Surely there is no year here when one could not make a good living in the bee business in a good locality.

Cauto el Paso, Cuba.

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

It's a good thing she's a bee or the mother queen would lose her patience taking care of her flock when they are all tucked in for the winter. Remember how you used to yell, "Mother, make these kids behave; they've got all the covers"?

Did They Stop Laying for Want of Pollen?

Having ten years' experience in handling bees I have never experienced a scarcity of pollen at this time of the year. I have noticed for the last six weeks or more that my queens—all young ones—stopped laying. I also tried to force them by feeding, and that had no effect. It was only last week that I came to a decision on the pollen question.

I should like to have you tell me the reason the queens stopped laying if other than that there was no pollen in the hives, and also how to save them till spring, as I do not care about losing a single queen. All are of good stock, there being sixteen in all. I had thought of packing all in large single-row tenement hives with six inches of leaves or shavings around the outside of the hives, and filling one comb solid with rye flour and putting it to one side of the cluster to form a division-board.

Philadelphia, Pa. SAMUEL K. JOHNSON.

[As a general proposition, all queens will stop laying, whether young or old, by about the first or middle of October. Old queens will stop laying shortly after the harvest in most of the northern localities. Much will depend upon whether there is a fall flow from asters or other sources. If honey comes in from natural sources queens will start laying and will keep it up until about the 15th of October, or about the time that cool nights begin to come on. Young queens—that is, queens 30 or 60 days old, will lay very much better than old ones. Perhaps your trouble was because you began feeding too late. If the nights are cool, queens don't lay much—pollen or no pollen.

In the case you have here cited, it is not altogether clear that a lack of pollen was the reason for the queens failing to lay. As a general thing there will be a little pollen in some of the combs in the hive; and if the bees are given stimulative feeding, if no honey is coming in from natural sources, queens will usually start laying, providing they are young enough. Old queens may not lay, even if they are fed, at that time of the year.

Your scheme of packing in long rows is good; but if your colonies are not strong you will have to unite until they are. This may mean the sacrifice of some queens.

We do not know of any way of giving artificial pollen in the combs that will give any satisfactory results.—ED.]

Devil's Paint-brush, or Orange Hawkweed

I should like to find out about a weed we have here. It is an annual, and is known as "Devil's paint-brush," or orange hawkweed. The pastures, old meadows, and roadsides are red with it the last two weeks in June, and the bees seem to like it better than clover. The pollen is a dark-orange color, and the honey water-white and quite heavy and thick. I have been unable to find a single fact about the weed. Can you give me any information?

Laurens, N. Y. C. L. WILLIAMS.

[We referred this inquiry to Mr. John H. Lovell, who replies as follows.—ED.]

Orange hawkweed, "Devil's paint-brush," or "Grim the collier," was introduced into this country from Europe some fifteen or twenty years ago. The botanical name is *Hieracium aurantiacum* L. It is a pernicious weed, rapidly spreading in sandy soil, and driving out the pasture grasses; but the flowers are showy, and it is sometimes, I believe, cultivated for ornament. I have it growing in my grounds, and it occurs wild in the fields, but is not well adapted to our heavy clay soil. Bees visit it to some extent—chiefly, I think, for pollen, and I regard it as of little value as a honey-plant. It may yield nectar more freely, possibly, in New York, but I am inclined to believe that Mr. Williams is mistaken in thinking he obtained a considerable quantity of water-white honey from this source.

Waldoboro, Me. JOHN H. LOVELL.

Concerning the Net-weight Law

I should like to ask you some questions concerning the net-weight law. Is it necessary to stamp the net weight and label each ½ lb. (6½ oz.) tumbler of extracted honey, or stamp the net weight or label each ½-lb. tumbler when shipped to Ohio, or just stamp the net weight, or label each case or barrel of them as the case may be?

Brooksville, Ky. ADAM KALB.

[It will be necessary to mark the net weight on each half-pound package of honey. Marking the net weight on each case or barrel would not answer the requirements of the federal law. If each package of honey weighs 6½ ounces it will not be proper to mark it one-half pound. If the honey weighs only 5 ounces, for example, it will have to be marked 5 ounces; but it would not be permissible for you to mark a package 17 ounces, because that would be contrary to the ruling. You would have to mark it 1 lb. and 1 oz. Any thing that weighs under one pound should be marked in terms of ounces.—ED.]

Spreading Brood

For years I have followed with excellent results the advice of Doolittle on spreading brood. My rule is never to spread a brood-nest till I have four combs of brood. Why? Because there are not enough bees to cover extra brood space. I never shift the pollen combs, for they are as important to the welfare of the colony as the honey. My arrangement is as follows:

Pollen
Brood
Brood
Old comb filled with honey
Brood
Brood
Pollen

P. C. Chadwick, page 883, November 1, quoting Mr. Doolittle, who says, page 750, September 15, "Any comb that is to be put between combs of brood should be full of honey, and that honey preferably sealed, adds that he would thank no one for retarding the work of his queen in any such manner. He says spreading brood should never be done unless conditions are such as to induce the queen to fill an inserted comb in 24 to 48 hours.

Mr. Chadwick's comment is misleading. Doolittle does not mean the honey is to be sealed when inserted in the hive. What he undoubtedly means is a well-ripened comb of honey, for he says further on, "The cappings to the cells should be broken by passing a knife flatwise over them before the comb is inserted between the frames of brood."

What happens when an *old* comb of bruised honey is given to a colony of four combs of brood and two of honey? The bees at once set to work to clean up the bruised honey; and in moving the honey the queen is offered more food, with the result of more eggs. Meanwhile the bees have been busy polishing and cleaning the center frame, leaving an arc of honey ideal to the bees for an early brood-nest. The old comb with its numerous layers of cocoons is warmer than a thin new comb, and retains the animal heat—vital to the interests of the brood-nest at this time of the year. The four combs of brood are daily giving more nurse bees necessary to take care of the increase of eggs, etc., and, as Doolittle says, there is undoubtedly a gain in time, but unless we want this gain in time it may prove better to see to it in autumn that there are "millions of honey at our house," and leave the rest to the bees. JOSEPH GRAY.

A Simple Four-colony Winter Case

Here is a description of a winter case which Irvin Ware, of Chesaning, Michigan, a partner of mine in the bee business, built for our bees. I helped to pack them before I came up here this fall.

First he makes a bottom-board about eight inches longer than the length of the hive, and then makes sides and ends about four inches higher. These are all put together with clamps. This gives four inches room for packing on both sides and ends, and over the top.

There is an alighting-board six or eight inches wide. Slats half an inch thick are nailed on the bottom-board, and the hive rests on these. A four-inch board laid flat on these slats at the front of the hive holds up the packing material and permits the bees to pass in and out.

When the hives were all packed, and the cases clamped together, we covered them with tar paper. With this kind of winter case we can leave them packed just as long as we wish in the spring, as they rest on these stands winter and summer, the bottom-boards resting on blocks and stones.

These colonies winter facing eastward, on the east side of ten acres of a thick wood. There is a little rise in the land just east of the bees that protects them from the east winds, and the wood protects them from the west. I have never noticed much trouble from the bees drifting.

Aitkin, Minn. WILLIAM CRAIG.

The Net-weight Law and Its Application

Have you a copy of the net-weight law of New Jersey? If not, where can I get it? The groceries here are selling honey without being stamped. I have told them it will have to be stamped, and they say, "No, we don't sell it by the pound. We sell it by the box." Now, have they a right to sell it that way? Whom can I write to, to stop it?

Monroe, N. J. JOHN K. KIMBLE.

[Unless your own state has a net-weight law of its own, independent of the federal law, the grocer is not compelled to mark the net weight on the section, neither is any local beekeeper. But any grocer or beekeeper, or any one else, in fact, who attempts to send a shipment of comb honey into another state must mark every section with the minimum net weight on the section itself.—ED.]

Onion Juice a Remedy for Bee-stings

I am curious to know whether anybody besides our family and friend have ever tried onion juice as a remedy for stings. Our experience has been this—that if the sting is immediately and carefully removed, and if a slice of raw onion is gently pressed and worked over the punctured skin, all pain ceases in about ten minutes, and little or no swelling follows. The relief is immediate.

If a small piece of ice is put on the slice of onion, and the whole bound to the affected part with a strip of cloth, the effect is even better; but ordinarily a drop or two of fresh juice squeezed from the onion slice will do the business with me, if the application is immediate. I am curious to know what others have to say about this cure for a bee-sting. The whole credit for the cure belongs to my wife. J. ROWE WEBSTER.

Lexington, Mass.

[Any cooling application, whether it be snow, ice, mud, a wet rag, or slice of an onion, would tend to relieve the pain from a sting. The pain will usually be gone in ten minutes any way. We doubt if there is any virtue in the juice of an onion itself. As a general thing the puncture made by a sting is so very minute that it is entirely closed when a slight swelling takes place. It is practically impossible to get any remedial agent into the wound itself unless it be opened with the point of a lance or knife.—ED.]

Borax Exterminates Roaches

When I took charge of the Kanawha County Infirmary the kitchen, dining-room, toilet-rooms, and the whole building, as well as the superintendent's residence, was creeping with roaches. I took powdered borax, sprinkled it along the steam-pipes, around the sinks and commodes, from the basement to attic. In two weeks not a roach was to be found, either dead or alive, and they have not returned to this date. The roaches had been in the buildings for ten years.

Institute, W. Va. M. K. MALCOLM.

Hornets Puncture the Grapes and the Bees Suck the Juices

Referring to the editorial in the November 15th issue, I have been watching this matter very closely, and find that hornets, wasps, and yellow-jackets often puncture the grapes, and then the bees get busy on the damaged fruit. If I were on a jury I would say that bees are not guilty, for they are harmless so far as sound fruit is concerned.

Cabot, Pa. W. F. EBERT.

A. I. Root

OUR HOMES

Editor

THE WAR, AND ITS EFFECTS ON INTEMPERANCE.

The sermon below was preached by Rev. H. S. Fritsch, for his congregation here in Medina, on Sunday evening, Oct. 10. Of course I was present, and, on account of my deafness, I sat close to the speaker. You may be sure I gave two or three hearty amens. As you go along you can imagine, each of you individually, where my amens occurred.

May God help us to learn speedily the lesson he is striving to teach us, and that peace and good will may take the place of death and devastation.

SOME LESSONS THAT THE EUROPEAN WAR IS TEACHING THE WORLD.

Surely the wrath of man shall praise thee.—PSALM 72:10.

The most significant event of modern times is the war now being waged in Europe. It is the duty of the Christian pulpit to interpret the movements and happenings of the day in their relation to the Christian religion.

In our boyhood days, when we were guilty of some particular piece of folly our elders used to philosophize for us and say, "Let it be a lesson to you!" If we climbed up on the woodshed in order from that lofty height to survey the wide expanse of the world, and lost our equilibrium, and rolled gracefully and disgracefully down the shed's sloping roof, landing upon the woodpile below with various and sundry bumps and bruises, our elders would say, "Now let this be a lesson to you!" If we banqueted in the shade of the old apple-tree, following the example of our illustrious first forefather who tasted the forbidden fruit, and then came into the presence of our elders contorted out of all semblance of boyish shape, imploring for a copious draught of Dr. Perry Davis' Pain Killer, we were told, "Now let this be a lesson to you!" If within our breast we felt surging and seething an impulse to devote ourselves to the great cause of humanity, and, following our Napoleonic and Alexandrian impulses for conquest we sallied and sailed forth to reduce the barbarians to civilization, and returned to our parental home with blackened eye and gory nose, we were told, "Now let this be a lesson to you!"

Nations, like boys, learn by experience. Nations, like boys, too, perpetrate their follies. The perpetration of a folly is not so reprehensible; it is the perpetuation of a folly that is criminal and suicidal. Nations, like boys, decline and degenerate when they do not permit their follies to teach them salubrious lessons. Nations, like boys, progress and advance when they do permit their follies to become lessons.

To every unprejudiced mind the European War appears a colossal and consummate piece of folly. Never before in the history of the world have the nations raged and the kings of the earth set themselves in battle array without knowing what they were raging over or why they are setting themselves in array! Were it not so tragic, one might say, as the Yiddishers do. "It is to laugh!" "He that sitteth in the heavens shall laugh!" A colossal, a consummate human folly is this modern war! The nations climbed the woodshed of arrogant materialism, and have tumbled disgracefully down! They gorged themselves with the forbidden fruit of land and sea grabbing, and have become contorted by painful convulsions! They adopted political programs of militarisms and navalism, and have become bruised and broken and battered and beaten at their own game! Folly of follies! And over against the war-racked and war-wrecked nations stands parental Christian Civilization and says, "Now let this be a lesson to you!"

What the ultimate and supreme lesson of this war will be, we have no way of knowing until it has been fought out to the bitter end. But there are already several lessons which stand out, and it is these of which I wish to speak tonight.

I. I think that, above everything, the present war is teaching the world the lesson of *the folly of intemperance*. Today in practically all of the great belligerent countries is a literal fulfilment of the prophecy of Joel, chapter 1, verses 5 and 6:

> Awake, ye drunkards, and weep; and wail, all ye drinkers of wine, because of the sweet wine; for it is cut off from your mouth. For a nation is come up upon my land, strong, and without number; his teeth are the teeth of a lion, and he hath the jaw-teeth of a lioness.

"Not Germany," recently said a great English statesman, "not Germany, but alcohol, is England's greatest enemy." Russia put the ban on vodka. The kaiser of Germany took his stand against lager beer, and all of the other belligerent nations to a greater or lesser degree are following the footsteps of these three illustrious examples.

It has been brought home to the world with a terrific and tremendous emphasis that intemperance is a threefold liability to a nation at war.

1. Intemperance is a *physical liability*.

The time was when athletes believed that alcohol constituted a physical asset. The prize-fighter took a number of drinks before he entered the ring, because he believed that the stimulant would increase his chances for success. The baseball player believed that whisky was a faithful ally in the winning of the game. In races, whether by foot or boat or bicycle, it was believed that a couple of drinks increased the chances for success. But the athletic world has learned its folly, and alcohol is taboo.

So, also, it used to be thought that alcohol was an asset in war. Perhaps this was true to some extent in the old *régime*. It may have been in the day when men fought shoulder to shoulder with sword or bayonet, that whisky created a certain frenzy of abandonment which may have had its value. But today warfare is largely conducted by machinery, and requires skill and precision. The man who operates the modern engines of war needs clearness of mind and accuracy of eye and steadiness of muscle; and it has been discovered that alcohol is tremendously treacherous in these respects.

The talk of our nation today is military preparedness. I shall have something to say concerning this a little later, but just here beg to say that I fear our statesmen are beginning wrong end to. The very best move that our nation could make in the way of national preparedness would be to close up every saloon in the country!

2. Alcohol has proven to be a *financial liability* in war.

War costs money. It is a drain upon the property and prosperity of the people. Intemperance produces poverty. An impoverished nation finds it hard to secure credit. "The nation that is drunken shall come to poverty," and a poverty-stricken nation stands no show in warfare.

3. Intemperance is an *economic* liability in war.

Let me illustrate what I mean by citing Germany and England as examples. Both of these nations have far more people upon their soil than the prod-

acts of their soil will feed. Therefore they must depend for their existence upon the importation of foodstuffs. England knows that this is true of Germany, therefore England established a blockade around Germany to keep foodstuffs from reaching her enemy. Germany knows that this is true of England, therefore Germany conducts a submarine warfare of destruction against vessels carrying foodstuffs to England. This makes it necessary that every ounce of grain raised in both countries be carefully conserved. Now, in spite of the alluring advertisements of brewers and distillers, the food value of beer and whisky might just as well be burned or buried. In order to protect themselves from sheer starvation, it is becoming necessary for the belligerent nation to prohibit the destruction of grain by forbidding or limiting the manufacture of alcoholic liquors.

So intemperance is proving itself a terrible liability in warfare. It makes the soldier incompetent and inefficient, it impoverishes the people so that they cannot bear the financial strain of the war tax, it destroys the products of the soil so that the people are in danger of starvation. No wonder that the great belligerent nations of Europe have latterly become ardent prohibitionists! God grant that America may learn the lesson before it has to be beaten into her with the sword!

II. The war is also teaching the world *the folly of armaments*. The world is learning the truth of the statement long ago made in the 33d Psalm, verses 16 and 17:

> There is no king saved by the multitude of a host: a mighty man is not delivered by great strength. A horse is a vain thing for safety; neither doth he deliver any by his great power.

A horse is a vain thing for safety, so is a trench, so is a Krupp gun, so is a battleship, so is a zeppelin.

It is not in the province of the pulpit to take one side or the other in the present discussion of preparedness in our country. That is rather a political question, and must be fought out by the politicians. It behooves every American, however, to consider how much of the present agitation is jingoism and how much of it is inspired by the big interests who have guns and uniforms and battleships for sale. But there is a deep philosophy of this whole question of preparedness which is truly in the province of the pulpit, and it is the philosophy of the text that I have just quoted:

> There is no king saved by the multitude of a host: a mighty man is not delivered by great strength. A horse is a vain thing for safety, neither doth he deliver any by his great power.

Why is a horse a vain thing for safety? Simply because the other fellow will get a horse too, and then you will have to get two horses; then he will get two; then you'll get three horses; and he'll get three also. Then you will get a chariot to hitch to your horses; and he will hitch his horses to chariots. You will build a battleship, then the enemy builds a battleship just a little bigger than yours. Then you must throw your battleship upon the scrap-heap and build one bigger than his. Then he will throw his battleship upon the junk-pile and build one bigger than yours. Verily, a battleship is a vain thing for safety.

Why is no king saved by the multitude of a host? Because the other king will also get a bigger multitude of a host, then the first king must draft more men into service; and the second king, discovering that his host is now comparatively a handful, drafts still more men into service. And thus the process goes on and on.

The present European War is surely going to teach the world the lesson that every armament is a vain thing for safety.

Universal disarmament is coming, not by the efforts of those who do not believe in war, but by the machinations and manipulations and maneuvering of the warriors. "Surely thou makest the wrath of man to praise thee," and disarmament is coming by the very efforts of those who advocate armament!

This is the way the process will work itself out: Battleship after battleship must be thrown upon the scrap-heap as each nation in turn builds a bigger or more effective ship; cannon after cannon must be consigned to the junk-pile as each nation designs a more effective instrument of slaughter. The process will go on draining the treasury of the nation and emptying the purses of the people until there will be no men left to cultivate the fields and do the nation's work, and in sheer self-defense the nation will have to send its soldiers home.

But this disarmament will not take place next week, nor yet next year. For some time to come, at least, the nations now engaged in warfare will manufacture more and more armaments and draft more and more men into service. Inevitably the neutral nations will feel, in self-defense, that they must do likewise, and doubtless this is the part of wisdom. If a bunch of hoodlums were clubbing each other on the street, the innocent by-stander would be foolish not to supply himself with a club for self-defense should the hoodlums attack him—though perhaps he ought not be an innocent by-stander. He'd better be a by-walker and leave the hoodlums to club it out among themselves. But it would be folly for America not to make some provision for self-defense should the maniacs across the waters get after us. So it will inevitably come about that there will be an increase of militarism, not only in America but in all the neutral nations of the world. But all this will be but transient and temporary. When the war is over, and the tumult and the shouting shall have died, and the hatred and the heat shall have cooled, then the nations will settle down and calmly consider the whole matter, and it will inevitably follow that there will result international disarmament, because the nations will have learned by bitter experience the truth, long ago spoken by divine inspiration, that armaments are vain for safety.

III. Of chief importance, however, is the third lesson that will surely be learned, the lesson of *the folly of theoretical religion*.

This war has been called the "collapse of Christianity." It is not the collapse of Christianity, but it is the collapse of a false Christianity. It is not the collapse of the Christianity that Jesus taught, but it is the collapse of the Christianity that the church has taught.

It is a significant fact that in all of the belligerent countries the progress of the war has been marked by great religious revivals. Superficial observers clap their hands at this and say, "Behold, there is at least some good coming out of this war. Behold the revivals that are taking place." But before they clap their hands too vigorously it might be well to investigate just what is being revived. In Germany there is a great revival of prayer. So far so good! But what is the burden of the prayer? "*Gott strafe England!*" "God punish England! God punish England!" In England there is a great revival of religion, and the squabbles which have disturbed the theological circles over there are quite forgotten in the unity of consecration; but, alas! it is a consecration to hatred! There is a revival of religion in the belligerent countries, to be sure, but it is not the revival of the religion of Jesus Christ, but of Joshua; not of Calvary, but of Canaan!

This revival of traditional religion is as inevitable as the revival of armamentation which we have just noted. But when the frenzy of hatred is cooled down, and the Christians of the various countries come together again in council, they will begin to ask themselves, "Why was it that our Christianity did not have power enough to keep us from fighting each other?" And, as surely as there is a God in

heaven, the answer will be that it was because our Christianity was not Christian!

The simple religion of Jesus Christ has been perverted into a system of theology. Forms and formulas, rites and rituals, creeds and confessions, organs and organizations, signs and sacraments, have been substituted by the church in place of the simple ethical philosophy of the Sermon on the Mount. The accepted orthodox Christianity of the day could not and would not prevent the European War; but the Christianity of the Sermon on the Mount, epitomized in the Golden Rule, could have and would have prevented the war. And surely in those calm days which are coming after the conflict, there will be a revival of real religion. Forms and formulas, rites and rituals, creeds and confessions, organs and organizations, signs and sacraments will be thrown on the scrap-heap, and the Golden Rule of Christ will be placed upon the moral throne of the world! Already here and there above the shouting and the tumult there is heard the voice of the prophet speaking in the language of ancient Micah:

Wherewith shall I come before Jehovah, and bow myself before the high God? Shall I come before him with burnt-offerings, with calves a year old? Will Jehovah be pleased with thousands of rams, or with ten thousands of rivers of oil? Shall I give my first-born for my transgressions, the fruit of my body for the sin of my soul? He hath showed thee, O man, what is good; and what doth Jehovah require of thee, but to do justly, and to love kindness, and to walk humbly with thy God?

O foolish Christian church! let it be a lesson to you! Your traditional orthodoxy has been weighed in the balances and found wanting! Shamefully powerless have your creeds and confessions proven themselves in this world woe! Away with your impotent theoretical theology, and enthrone the potent teaching of the Master:

Whatsoever ye would that men should do unto you, do ye even so unto them.

Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy mind, and thy neighbor as thyself.

CAN A CHRISTIAN WITH A CLEAR CONSCIENCE GO TO WAR?

The letter below is from an old and valued friend. As you will notice by the date, it came some time ago. Read it and ponder over it as I have done.

Dear Friend:—This is from the father of Wesley Foster, who used to read with delight and profit the old *American Bee Journal* and Novice's articles. Pardon me if I suggest a few thoughts that seem important at the present time. The worldwide war still rages, and Christians of all these nations have no clear and effectual protest or explanation, nor any remedy to offer. For nearly 50 years I have been led to think the gospel remedy is not in itself at fault. We have all adopted the sentiments of the sermon on the mount; but in our practice we have set it at naught—made its vital force void by our traditions of patriotism—our law-and-order ideas and our military sentiments. We have vainly supposed that men would, by and by, put up the sword; but to-day scarcely a man in a million dare confess his belief in a gospel that forbids war. There is *no conscience* regarding the taking of human life in war. We hear no testimonies to-day like those of early Christians who declared, "I am a Christian; I cannot fight. I cannot fight, even if I die."

I can think of no stand that we could take to-day which would be more pleasing to God and our Savior than a calm, persistent refusal to take any part in the bloody conflict now raging. Such counsel may appear foolish, coming from a grandpa who is too old to be in the ranks. But why should our extreme age exempt us? We have lived long; our race is nearly run; our lifework is about finished. The world can better spare us than the young men with growing families. Surely it is wrong for any nation to call such citizens to the ranks of slaughter. God never intended to bless such a murderous sacrifice. Surely a young man may claim a right to fulfill his mission by building a home and leaving a goodly number of his little ones to bless the world. Don't tell me we are to obey rulers when they call to arms. Rather let us say in faith, "Whether we ought to obey God or men, judge ye." See Acts 4: 19. For nearly 2000 years we have tried profession without practice; but now it is up to us to practice what we profess, and give God a chance to work miracles by protecting his own, even those who are willing and obedient. Some of our heroic missionaries take their lives in their hands and work wonders until the merchant ships land their traders, backed by warships, and military ideas creep in and sow seeds of distrust, and the pure gospel of peace becomes tarnished.

What of the cross of Jesus? Even when the mob crowded about him he could have called for legions of protecting angels for himself and his cause (this last more dear to him than life); but he chose rather what we to-day cannot fully understand—that the weapons of our warfare are not carnal but spiritual.

You and I should have some timely counsel to offer our children, even true words—"wisdom from above," the kind that is "first pure, then peaceable." Has not the experience of years shown us the value of the gospel in all the lesser evils? and are we not called upon to declare our belief that, when rightly applied to this age-old wounds of the nations it will cure that also? We shall not see the triumph of Christ until his followers cease their present-day hypocrisy. We must, regardless of what others do, live, practice, and teach what Jesus taught, and was willing to lay down his life for. Martyrs of that sort are not many, but are notably such as do not die fighting with the weapons of war in their hands.

Twin Falls, Ida., Nov. 28. A. F. FOSTER.

After reading the above I feel strongly inclined to stand by our good brother and say, "I cannot consent to raise my hand against my fellow-man," or declare, "I am a Christian. I cannot fight, even if I die." But when I consider further, how about defending the home, the wife, and the children? I have before asked the question if we should knowingly let counterfeiters ply their trade; and the same with pickpockets, highway robbers, and the midnight assassin? After every earthquake or flood there are in every city those who would plunder, rob, and steal. Shall we stand idly by where the officers of the law and policemen are nearly overcome while doing their best to restrain a mob? I leave our readers to judge; and may God in his great mercy guide us in the straight path, even if this war *should* come clear over into our own country.

HIGH-PRESSURE GARDENING

SWEET CLOVER—SOMETHING AUTHORITATIVE BECAUSE IT COMES FROM THE DEPARTMENT OF AGRICULTURE.

In the *Weekly News Letter* from the Department of Agriculture for Sept. 15 we find an article on sweet clover, which, even though it be lengthy, answers so many questions that keep coming we have decided to give it entire; and I would advise our readers who are interested in experimenting with sweet clover to keep it handy where they can refer to it. Every statement made is in accordance with our own experience.

SWEET CLOVER; COMMON IN MANY PARTS OF THE COUNTRY; GAINING IN FAVOR AS A CULTIVATED CROP.

Sweet clover, which is so common along roadsides and in waste places in many parts of the country, is rapidly gaining in favor as a cultivated crop. This is due to its value for soil improvement, for pastures, and for hay. There are three species of sweet clover commonly found in the United States. The biennial yellow-flowered species (*Melilotus officinalis*) and the biennial white-flowered species (*Melilotus alba*) are valuable over a wide area, while the annual yellow-flowered species (*Melilotus indica*) is of little economic importance except in the extreme South and Southwest, where it is grown as a winter-cover and green-manure crop. With the exceptions of a few localities, white sweet clover is grown almost entirely. This is due to the fact that it yields more forage and produces larger roots than the other species. The white-flowered species is ordinarily referred to as sweet clover, while the other two species are called yellow sweet clover.

Sweet clover resembles alfalfa when young, but can be distinguished from it by its bitter taste, its smooth shiny leaves, and later, when in bloom, by the long, loose spike-like arrangement of white flowers in contrast to the close purple clusters of alfalfa flowers. One of the most notable features of sweet clover is its root system. During the first season of growth the roots often reach a diameter of one-half inch at the crown of the plant. On account of the fleshy character of the roots, a large quantity of vegetable matter is added to the soil, even when the tops of the plants are removed for hay.

USES OF SWEET CLOVER.

There are few plants which will put waste land or run-down farms into condition for producing crops as quickly as sweet clover. Its value for this purpose is recognized in Alabama and Mississippi, and also in parts of Kentucky and Ohio. On account of the root development of this plant, large quantities of vegetable matter are added to the soil when a field of sweet clover is plowed. The root system alone has been estimated to be about 20 tons of green weight per acre for a good growth of sweet clover. In some parts of the country it has been used in a small way as a green-manure crop, the second year's growth being plowed under. By turning under a crop of sweet clover, or even the soil-like, marked gains are obtained in the following crop.

Sweet clover is a very good winter-cover crop in that it prevents the soils from gullying and washing. It also takes up large quantities of available fertilizers which would probably leach out of the soil during the winter. On account of the large tap-roots of sweet-clover plants, potassium and phosphorus may be taken up in the subsoil and deposited, at least in part, in the surface soil when the roots decay.

Since sweet clover is a biennial, like red clover, it is readily adapted to similar rotations. Sweet clover will undoubtedly prove to be a valuable crop as a substitute for red clover in the ordinary farm rotations where red clover will no longer grow. It may be seeded in the spring on grain as red clover is sown. When seeded in this manner some pasturage will be produced that fall in the North and pasturage or a hay crop in the South. The following season it produces two crops in the North and three crops in the South. It may be handled in a manner similar to red clover.

Sweet-clover hay is rapidly coming into favor as a feed for all classes of live stock, especially in places where more desirable types of hay will not grow successfully. Ordinarily some trouble is experienced in getting stock to eat sweet clover at first, on account of its bitter taste; but after they have been accustomed to eating it no trouble is experienced. A high percentage of digestible protein is contained in the hay.

Sweet clover makes excellent pasturage for horses, sheep, cattle, and hogs. Probably the easiest way to create an appetite for this plant is to commence pasturing stock on it very early in the spring of the second year, before other green feed has started. A sufficient number of animals should be kept in a sweet-clover pasture to keep it grazed rather closely. This will prevent the stems from becoming large and woody, and will also induce an abundant growth of young shoots. Stock when pastured upon sweet clover makes gains which compare very favorably with those obtained from either alfalfa or red clover.

There is very little danger of bloating when stock are pastured on sweet clover, but it is safest to avoid turning the stock into a sweet-clover pasture when it is wet with dew or rain, or when stock are unusually hungry. Sweet clover will also thrive well during midsummer drouth and produce much early and late pasturage.

SOIL REQUIREMENTS.

Sweet clover has the ability to thrive on poor clay soils as well as on poor sandy soils, but it will make a better growth on fertile soil. It prefers soils of limestone origin. Clay soils which are acid should be limed before sweet clover is sown. Sweet clover is also very resistant to alkali, and plants may be found in the West growing on soils so alkaline that little else than salt grass is able to survive.

The primary requisite for obtaining a stand of sweet clover is to have a firm, thoroughly compacted seed-bed with just enough loose soil on top to enable the seed to be covered. The lack of a firm seed-bed is probably the chief reason why sweet clover so often fails when seeded under cultivation. However, if it is seeded with spring-sown grain the seed-bed should be rolled after seeding. Better results are usually obtained where sweet clover is seeded alone in the late winter or spring on ground which has been plowed and thoroughly worked the previous fall.

SEEDING.

The time for sowing sweet clover varies considerably in different sections of the United States. In the eastern part, in the latitude of Washington, D. C., a good stand may be obtained by seeding either early in the spring or about August 15. One disadvantage with early fall seeding is that the plants mature and die the following year and only a small growth of roots is obtained. If seeded in spring in a nurse crop sweet clover will develop an extensive root system the first year and produce a small

amount of pasture. For this reason it is recommended that, so far as possible, it be seeded in the late winter or spring. In the southern states, as far north as the Ohio River, the practice is to seed quite early in the spring, during February or the early part of March. In the states further north the date is correspondingly later, until in Wisconsin it is usually seeded in the latter part of April or first of May. When the rainfall is sufficient, a stand can be obtained by seeding in small grain, such as fall wheat or spring-sown crops like oats and barley, but in seeding with grain one runs some risk of having the sweet-clover plants killed out by drouth during the summer. Owing to the rather slow germination of the seed it is usually best to seed at the rate of 15 to 20 pounds of hulled seed and 25 pounds of unhulled seed to the acre.

INOCULATION.

On poor soils, in localities where sweet clover is not common, it is quite important that the soil be inoculated at seeding time to insure good results. Even in localities where sweet clover is plentiful the early growth has been made much more vigorous by thoroughly inoculating the soil. Inoculation can be accomplished by mixing soil from a field where sweet clover, burr clover, yellow trefoil (black medic), or alfalfa grows abundantly, pound for pound, with sweet-clover seed. This mixture should be sown after sunset or on a cloudy day, and immediately harrowed in, since daylight greatly injures the inoculating germs. Inoculation is also accomplished in the South by using unhulled seed. Pure cultures of the inoculating bacteria may be obtained free of charge from the Department.

HARVESTING.

When hay is desired, sweet clover should be cut just before it begins to bloom. At this time the leaves are most abundant, and the stems have not yet become woody. Sweet-clover hay should be tedded while in the swath; and, just before the leaves become dry enough to shatter, it should be raked into windrows. After lying in the windrow for a day it may be put into shocks and cured. When sweet clover is seeded in the spring with a nurse crop, only a small amount of pasture is produced that autumn; but where it is seeded alone in the spring a cutting of hay may be made in the autumn. The following year a hay crop and a seed crop, or two cuttings of hay if seed is not desired, are usually obtained. In the South, where seeded alone, two cuttings may be obtained the first year, and either two cuttings of hay and a seed crop or three cuttings of hay the second year. Where seeded alone in the North there is no danger of the hay becoming woody the first year, and for that reason it does not need to be cut until it has attained its largest growth in the fall.

SEED PRODUCTION.

In harvesting the seed it is important that the plants be cut before the seed is fully matured. One must watch the seed crop carefully, and as soon as the lower racemes or spike-like arrangements of flowers are dry and mature it is best to cut the crop. Even where it is mown and the seed flailed out, probably not more than three-fourths of the racemes should be allowed to become fully mature. Sweet-clover seed can be thrashed most easily by the ordinary thrashing-machine; but if it is to be hulled a regular clover-huller with special rasps is used. In semi-arid and irrigated sections the hulls are so dry that an ordinary grain-thrasher will remove most of them. Since the seed shatters very easily, sweet clover should be cut when it is wet with dew. If the first growth be cut for hay when it is 2½ feet tall, leaving a six-inch stubble, the seed crop will come on much more evenly. Care should be taken to cut the stubble of the preceding hay crops as low as possible, so that there will be sufficient stems remaining to resume growth, as this plant, unlike alfalfa, does not form new crown shoots. Seed yields vary from two to eight bushels to the acre.

ERADICATION.

The failure of the farmers throughout the United States to make use of this valuable legume has largely been on account of the fear that it could not be eradicated from their farms if once started. The biennial nature of the plant makes the problem of eradication very easy. It will not persist when continually mowed so that it cannot produce seed, nor is it troublesome in clean cultivated or intertilled crops.

QUESTIONS ABOUT FLORIDA, DUCKS, CHICKENS, BEES, ETC.

1. Do you think that the raising of Indian Runner ducks in southern Florida is profitable—more particularly for eggs?

2. Were you called upon to decide whether you had better raise Indian Runners or any other breed of poultry that you might select as a source of income, which would it be?

3. In California there is a prejudice against duck eggs, hence the people that deal in eggs alone do not encourage one's raising ducks. Is this so in Florida?

4. What variety of fowls do you advise keeping in Florida—that is, if you wished to make eggs the leading feature of the enterprise?

5. What do you advise as a source of income in connection with Indian Runners or poultry—that is, for Florida, and if one had five to ten acres of land?

6. Do you advise keeping the white Indian Runners in Florida or the colored ones?

7. Does the warm country of southern Florida seem to affect unduly the Indian Runners?

8. Do you know of any section in southern Florida, east or west coast, where you think that one might profitably start an apiary? A friend once visited Sarasota, and was quite taken with the place. He also spoke of some near-by islands.

9. Will you please mention in the order of their importance such plants as are grown in Florida suitable for bees?

10. As a money-maker only, apart from any personal choice as to a place of residence, etc., do you consider California or Florida the best state—that is, suitable for bees?

11. What variety of bees do you consider the very best for Florida?

12. Were one starting the bee industry in Florida, would he do better to buy his apiary stock in that state, in Georgia, or some of the other states north of Florida?

13. A gentleman said to me the other day that he thought there was an overproduction of honey in this country. Is that so?

14. Does extracted alfalfa honey rank lower as a market product than other grades?

15. What about the orange-blossom as honey-producer?

16. About what proportion of our honey is exported?

San Jose, June 15.

1. The Indian Runner ducks are profitable in Florida when eggs are worth 40 or 50 cents a dozen; and as we get them to lay when the hens are laying little or none at all, the ducks do very well, especially if you have an opportunity to let them run in the canal as we do. If you are obliged to keep them confined, unless you use great care and economy their feed will cost more

than the eggs, when eggs are down to 20 cts., as they were last winter.

2, 3. I would select some other breed of poultry than ducks, because of the fact of the prejudice you mention in No. 3; and I think it's about the same in Florida as in California. People won't buy duck eggs, as a rule, unless there is a scarcity of hens' eggs and they are away up in price.

4. For eggs alone I think I would keep the Leghorns; but as the Rhode Island Reds for the past two winters have been laying, at moulting time, when eggs were 50 cts. a dozen, more than the Leghorns, I am not exactly decided.

5. I suppose the most money is made growing celery, lettuce, and other stuff to be shipped north; but this requires considerable capital, and the result is, perhaps, uncertain. As for myself, I have had more profit in growing potatoes, in connection with poultry, than any other garden crop; but I sold my potatoes right in town, of course, only in limited quantities. See back numbers of our journal.

6. My impression is that it makes little difference whether the ducks are white or colored; that is, where they are kept for eggs, and I should say the same in regard to chickens. The warm weather doesn't seem to trouble Indian Runners at all; in fact, they have no diseases so far as I know, and are never troubled with insects or vermin, unless it is the crocodiles where they run at large. See back numbers.

8. Sarasota is but a few miles from Bradentown, and the conditions are practically the same. The trouble with the island, and the greater part of Florida, in fact, is transportation, the distance from postoffice, etc.

9. There are no plants grown for bees in Florida that I know of. Of course, some honey comes from orange bloom, but oranges are grown for fruit and not honey.

10. I suppose more large yields of honey have been made in California than Florida; but it should be kept in mind that Florida has in years past also made some enormous yields; and California has also had quite a few seasons when the honey crop was almost a failure.

11. I believe the Italians are considered the best all-around bees in Florida as well as everywhere else.

12. I think I would buy bees to start with in Florida, so as to save transportation; and a few hives can be bought in almost any locality in the state.

13. An overproduction of good honey is something I never heard of as yet. I think there is no trouble in that direction.

14. Alfalfa honey is generally considered about equal to any, although there are some people who dislike its particular aroma.

15. Orange-blossom honey stands clear up to the top, or at least very near to the top, as to quality; but it's only occasionally that we have a good flow from orange bloom.

16. I am not prepared to answer; but my impression is that very little honey goes out of the United States. In Cuba, before the war, tons and tons of honey were sent to Germany and other foreign countries.

RAINBOW CORN AS A SUBSTITUTE FOR OSTRICH FEATHERS.

Dear Uncle Amos:—At a party that Elizabeth was invited to she wore a hair-band of a rainbow corn-leaf which grew in our garden. I thought you might like to know of a new use for rainbow corn.

Your niece,

Lakewood, O., Aug. 5. DONNA SMITH.

Of course you have all heard of the cost of high living, referring particularly to "our daily bread;" and I think we are going to have something about the "high cost of dressing," especially when we consider the cost of some of the expensive millinery. The rainbow corn leaves would be, of course, but transient; but when the corn is at its best it would not be very much trouble to gather fresh leaves for every special occasion.

THE WRIGHT BROTHERS' FLYING-MACHINE FACTORY AT DAYTON, OHIO.

Ever since the Wright brothers succeeded in making a machine fly, I have given you occasional notes as the years have gone by. Just now I clip the following from the *Ohio Farmer:*

WRIGHT PLANT SOLD.

Orville Wright, aviator and aeroplane inventor, has sold his factory at Dayton to a syndicate of eastern capitalists. He now intends to give all of his time to scientific research along the lines of aviation.

It may be of interest to know that this Dayton factory is now quoted at something over a million dollars. I have been wondering if it were not possible that Orville Wright has sold out because he is averse to furnishing machines for war, as his father has been all his life a minister; and from what I know of the man I can readily imagine that he would be strongly averse to the manufacture of any machine designed for the purpose of killing people.

HEALTH NOTES

INTERNAL BATHING; FLUSHING THE COLON.

Our older readers will remember that toward twenty years ago I was greatly taken up with the "new water cure," as we called it, and I had some tracts published describing it, and, in fact, this whole thing was quite a fad at that time. But I soon discovered, with others, that, while flushing the colon with warm water would give instant relief in some cases, it was a great mistake—yes, a great blunder—to imagine that nature wanted us to hurry things up by a *daily* use of these applications of water or some substitute. Any one who has tried it will soon find his strength giving out, and I have been obliged to give a warning at various times ever since I was led into this piece of folly. Here is something from a young physician that hits the matter just about right.

Mr. Root:—I have gone so far in joining the "Bee Tribe" that I have acquired two swarms of Italians and the A B C, and have subscribed for GLEANINGS; and, strange as it may seem, I know enough to know that I don't know much about the bee part of it yet; but in the Health Notes I found that for which I had been long looking in vain (as people rarely are frank and helpful enough to publish any adverse testimony); viz., practical testimony as to the harm arising from following too far such a fad as the "internal bath."

There are conditions in which its limited use is no doubt beneficial; but if the wise Creator had intended that it should be always necessary or even good he would have provided us with a syringe attachment.

Most of our health fads have a germ of truth in them; but either their promoters hold the dollar so near that it covers all else for them, or they are seeing everything through one knot-hole; and any boy around the ball-park can tell you that you can't do that.

How much better it would be if we would apply a little skepticism, and seek knowledge until we are able to judge intelligently before following any of the "isms" faster or further than our reason can keep up with us, instead of blindly taking the word of some monomaniac or fellow who has something to sell!

How do we know that the contents of the bowels contain matter that is acting as a poison to the system? We don't. But we do know that they contain a lot of digested food ready for assimilation, and which the system needs. Who would be so foolish as to go to the expense and trouble of preparing food and then throw away what is not taken out at the first course?

How do we know that poisons are absorbed from the bowels? We do know that they are not, under any ordinary circumstances, but that there are some things that we need which are to be taken up by organs made to take them up, and to reject the refuse which the bowels will naturally throw off.

When we are ignorant of a matter, even if we know our ignorance, we hesitate to admit it, and find it easier to listen to the fellow who will make a lot of positive statements, and draw conclusions from them regardless of their truth, and be ruled by our imagination or his, than it is to question, sufficient to be guided by our own reason. It is not always safe to admit the truth of a thing and follow it simply because, in our ignorance of the subject, it can be made to look plausible to us.

Chattanooga, Tenn. F. C. FREEMAN.

VICTUALS AND DRINK; WHAT SHALL THEY BE? HOW TAKEN? ETC.

I am a clergyman, and have been taking GLEANINGS for a little more than a year. I am greatly interested in your Health Notes, for the reason that I am trying to win back my health. I notice that at your advanced age you keep in good health by strict observance of health laws, and carefulness in eating.

Would you be able to give an article on diet in which you describe or rather name the foods you eat, the number of meals per day, etc.? At the present time I am handling my own case of superacidity of the stomach; and I know from past experience that I shall get over it.

I fasted from all food about two days; drank plenty of water, and am now taking four quarts of milk daily when at home, drinking 6 ounces every half-hour. When visiting around the parish I take about a quart of milk at a meal. The milk is warmed, and is "chewed." S. CLOWES NOXCON.

Winona, Ont., March 23.

My good friend, I should say you are about on the right track except in the great quantity of milk. Few people could stand as much; and taking it in small doses every half-hour I am sure would not agree with me at all. I greatly prefer eating nothing after three or four o'clock in the afternoon. You do not mention outdoor air and sunshine; and so far as a clear conscience is concerned, a minister of the gospel should, it would seem above all others, have that at all times, together with "the peace of God that passeth all understanding."

NERVOUSNESS—WHAT SHALL BE DONE FOR IT?

If Mr. A. I. Root could help me some I should be thankful. I am troubled with nervousness, and the doctor does not do me much good.

Cotton, Ill. EVAN J. JONES.

My good friend, a little sleep when you are worried and nervous would be the first thing; and I would advise two meals a day, or two meals and a little fruit, say at four or five in the afternoon—nothing between meals until next morning, at breakfast. Your occupation should be outdoors, and you should have exercise enough to feel tired before you take any rest. If there is something that worries you, get rid of it if possible. If you have financial trouble, get rid of it. The loss of a little money or a little property is nothing compared with the loss of health. Strive to have a clear conscience void of offense before God and before your fellow-man.

POULTRY DEPARTMENT

THE INTELLIGENCE OF THE HEN; ALSO SOMETHING ABOUT CHICKEN HAWKS.

The letter below was received some years ago, before the trouble in Mexico. May God grant that a settlement may be near at hand, and that we may hear further from the writer.

At Veredocia we care for 300 chickens, and we very seldom eat one—not because we do not appreciate the taste of their tender flesh as much as the hawks do, but because it is too much like eating the tender bodies of our own babies which we have ofttimes snatched from the outstretched hand of death, and in our bosoms hidden from his grasp. We sell our cockerels and let others slaughter and eat them. But on those rare occasions when we nerve ourselves to kill one at home we see to it that there be no race-witnesses to the regretful deed, while the victim himself knows not his impending fate, for a sack drawn over his head mercifully closes his eyes alike to the light of his departing day and to the uplifted ax that descends to destroy a bright intelligence and a pleasing personality.

Do we incline to believe a chicken has a soul? We do not know. Let our practice indicating a recognition of a visible degree of intelligence, of race consciousness, and ability to adapt itself to a changed environment, be our answer.

As to the intelligence of the hen, our observation shows it to be marvelous within the limit of its environment. We have seen chickens struggling sturdily with problems, trying in many ways to solve them. Certain emergencies a hen meets promptly and bravely. All is accounted for by "instinct," a word expressing only the ignorance of our forbears. Call it rather the accumulated tendency of successive generations to answer a question in its one and only answerable way. We have no hesitancy in asserting that the hen has intelligence of a rational character, and that it can arrive at correct conclusions within the limits of its ability to take correct observations. The hen (and her mate) has wonderful eyes, with remarkable accommodation—eyes capable of detecting the arch enemy, the hawk, when a mere speck in the sky, and equally well to recognize and pick up mere specks of food on the ground. I could tell you many an incident illustrative of the existence of indubitable intelligence in the hen—not the kind that would make her out a mere reflex machine or an automaton.

Once I bought a hen from a Mexican señora—evidently old (the hen), and sold because her days of usefulness were believed to be over. She proved to be an inveterate mother, and we soon named her "La gallina loco" (the Crazy Hen) because of her belligerent nature. I wish I knew and could portray the life of that hen during the years before she passed to my care. I know they were full of tragedies; that hawks and coyotes had embittered her life and accentuated the distrust of innumerable [illegible] enemies. I could gain her confidence up to the point of picking up one of her family. She drew the line at that, and would attack with all the fury and ferocity of the mother robbed of her young, to the point of insanity. Once I gave her the family of a crippled mother, feeling inexpressibly mean when I did it, and she raised twenty-six. So you see that the idea that a hen is past her usefulness at two years of age will not pan out. *We* say that a hen of indefinite age that has learned to be a good mother is worth several times over more than the pullet which takes her place. "Don't kill the laying hen" is good advice; but "Don't kill the expert mother" is better.

The last family of the Crazy Hen consisted of eighteen. In our *prado*, or green, there is a mesquite bush around which I constructed an open circle of cordwood. This solitary refuge was immediately recognized and taken possession of by the Crazy Hen, and she and her family wisely kept within scooting distance of it. Nothing skyward escaped that mother hen's vigilant eye, old as it was. But the hawks had a way of sneaking down under cover of the seventy-foot cyanide tower, coming in sight only when on the downward fatal swoop.

Once a large hawk thus appeared over the family of eighteen. The crazy hen gave the signal to rush to cover, at the same time herself rushing furiously in line with the hawk to meet it as it neared the ground. The chicks were racing for and reaching the refuge; but one little belated fellow was seized just before the mother reached it with so furious an onslaught on the marauder that its flight was broken and it was obliged to drop the chick and make a run to get into the air again. After that the hawk kept circling at a great height for some minutes before he made off, the hen meantime watching his movements and signaling the chicks to lie low. We saw it all clearly—the hen maintaining a vigilant watch between where we stood and the refuge. At last, when the hawk was far distant, scarcely discernible, occurred the prettiest act of the entire drama, which only the intelligence and experience of the mother hen prevented being a tragedy. The hen gave a different signal, and immediately her family began streaming one by one out of the refuge, running like little white heads in a bee-line for their mother.* We counted them as they came out—seventeen; then there was a pause, and we thought the hawk had held on to the eighteenth and got away with it. We had all yelled involuntarily at the hawk when it first appeared. We had no gun, but we almost shouted when, a moment later, the wounded chick emerged and tried to run, but could not, though it bravely struggled at a walk to reach its mother. I went to meet it and found that one talon had gone through a wing, piercing the body; while another had punctured the crop. Notwithstanding its injuries, the wounded chick, rescued and afterward cared for

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* This matter of the "signal" that the hen makes to call her chickens to run under cover, and another signal that they can come out as soon as the danger is past, is something wonderful. Human beings have to be taught to talk; but the baby chicks, like the honeybee, are born with an education—an education that is given by no teacher, but by the great God above. Wild fowls—the partridge, for instance—have the same wonderful vocabulary when danger threatens. This whole matter calls to mind vividly a fragment of an old letter that has just turned up. It was something I wrote to Mrs. Root when I was down on the island near Osprey. It is dated Jan. 7, 1907.

Dear Sue:—I ought to grow "fat." I have been laughing so hard at my pet chicks. As they have no mother, they not only chase after me, but they talk to me almost incessantly; and oh such pretty little baby talk it is! I am learning their language, and they are learning mine; and I am sure the loving Father is sending messages to me—messages of his great love to "even me," through these tiny little voices. When their feet get cold they come to me to "cuddle them up," and then I get, oh such pretty little contented and plaintive voices of thanks! Two have died: but I think through no fault of mine unless it was because I didn't understand the necessity of keeping those tiny little feet real warm. Of course I have lots more, but I am almost ashamed to tell you how hard it was to give up those two.

by its brave mother, got well, and was soon indistinguishable in the rapidly growing family.

After this, and, indeed long before, we were ashamed for having named her so disrespectfully; and we said that, if she would permit it, we would tie a white ribbon to her wing and call her our "W. C. T. U." fighting mother—worthy exemplar or prototype of those saints with souls who are rapidly "inheriting the earth" after 45 years of faithful endeavor.

Tell me, friend Root, was the defense and attack of our ill-named Crazy Hen "the reflex action of an automatic machine" or was it not rather an exhibition of what in man is called presence of mind, the prompt action of faculties inherited, sharpened, and developed by personal experience? That valiant mother had encountered hawks before—doubtless often fruitlessly; but, as in this case, also with results conservative of the race.

Is intelligence an attribute, a function of soul? Can there be soul without intelligence, without reason, without morality? What and *where* are the lines of definition?

"Morality in chickens! How absurd!" I hear some one say. I could, nevertheless, write an interesting chapter on the family relation of the poultry-yard. Immorality of poultry is the product of conditions created by man. The hen is by nature chaste and continent, seeking and giving her affections to one honored spouse only. It is a scandalous libel on the hen to call her an immoral (or unmoral) automaton. She is neither. That chapter in the psychology of the hen is one of the most pleasing, but it cannot be written now.

Force has no place in the training of young animals of any species. Mature animals with all their inherited and environic tendencies fully developed are not easy to subdue to the will of man. Force is effective only as it demonstrates man to be more powerful and resourceful, thus inspiring *fear*. But fear is a very unsafe basis for any relationship between man and the lower animals, since it arouses and accentuates the natural cunning of the animal, placing it constantly on the watch to take its trainer at a disadvantage. Such animals are not tamed at all. Another is a state of war instead of peace and good will between man and his victims.

Every animal, when it meets man, is an interrogation-point—the question scintillating its brain being, "Is he friend or foe?" There is scarcely more than a moment to reach a conclusion, and almost invariably the animal gives itself the benefit of the doubt, and flees or prepares to fight. He who would enjoy the companionship of the lower animals, whether bird or beast, must learn how to get a different answer to the opening question. Many animals are eager enough to establish friendly relations with man; but the latter is too unintelligent to understand their advances.

GEO. W. DITHRIDGE.

Vencedora, Chih., Mexico.

I wish to call particular attention to the two last paragraphs:

My experience is that domestic animals, especially chickens, after they find that you are really a friend to them, instead of an enemy, greatly enjoy friendly relations; and, as has often been said, the hen that lays the eggs is the happy hen; and when the fowls begin to understand that their owner *is a friend and protector,* they soon begin to enjoy companionship, and are delighted to see and meet their protector. I wish to emphasize, also, the point our friend makes, that, when it is necessary to kill a fowl, do not let any of the rest of the flock witness what is going on. Running down a fowl, when one is all at once wanted for dinner, is bad and demoralizing all around. Take them quietly off the roost, if possible.

May God forgive *me* for having become vexed with sitting hens or hens with broods of chickens in times past; and may he help me to remember the good points presented in the letter above, when I am tempted again to become vexed with the chickens I love, down in my Florida home.

HUMBUGS AND SWINDLES

$239,000,000 GONE TO SWINDLERS; THE "ELECTRO-CHEMICAL" FINGER-RING.

Our older readers will recall how we fought the "iron finger-ring" in years past in connection with "electropoise." See the following from the *Ohio Farmer* of Nov. 6:

During the past four years over 239 million dollars have been filched from the American public fraudulently. That is a big statement, but it represents only a part of the money that has been taken dishonestly during that period. It is merely the sum that federal officials have reported to have been so lifted. It has often been said that the American public is fraud-loving; it likes to be humbugged. But no matter how true that statement may have been at one stage of our history (and of the circus business) it is becoming more and more out of fashion with the passing years. The postoffice department has been largely instrumental in causing the decrease of fraud. In its effort to reduce this form of piracy the department has issued 56 fraud orders during the past year. These orders deny the use of the mails to the person or firm named. As a result of this policy of the department the number of fraudulent schemes has been greatly reduced, but still the aggregate is tremendous. The solicitor of the postoffice department states that one fraudulent concern had receipts of over $350,000 last year. A certain "anti-fat" concern spent over $50,000 in a single month in advertising, according to the same authority. Last year over 40,000 complaints and inquiries relative to frauds were received by the department and over 4000 cases were actually investigated. One of the most profitable fields seems to be that of working on the imagination and credulity of people who are in ill health. Inspectors report that one progressive Ohio manufacturer received $46,500 from the sale of a metal "electro-chemical" finger-ring, which was sold for $2 to some and $4 to others. It was explained that inasmuch as certain diseases are caused by acid in the blood, they would be cured by wearing this ring, because the acid and the ring would create an electro-chemical action, causing the removal of the excess of acid! The diseases which the ring was intended to cure ranged from Bright's disease, St. Vitus dance, epileptic fits and spasms to adenoids, gout, and cancer. It would surely seem that there was considerable acid in the disposition of a man who would make such claims, the cure for which would rest in an iron ring about the ankle from which led a strong chain to a heavy iron ball. Beware of paying for things which are not understood. Beware of charms, wonderful cures, and investments said to make tremendous returns. The people behind such schemes are not in business for their health—at least not for the health of the investor.

Index to Gleanings in Bee Culture

Volume XLIII

In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials, Illustrations, and A. I. Root's writings.

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ON THE BOOKSHELF

Wealth from the Soil

When farm enthusiasts talk about the returns in farming for the educated man, they sometimes forget the fact that the profits are only for the man with an education related to the soil. Attending an agricultural college is not the only way in which the necessary information is to be obtained, however.

"Wealth from the Soil" (Forbes & Co., Chicago, $1.00) is one means. This, and other books of its type, are making farming an exact science, more interesting and far less uncertain than it used to be.

The author, C. C. Bowsfield, shows the beginner how to select land, where to locate, what to pay, and how to equip and organize for money-making. With such information the book will save amateurs from serious mistakes.

His chapter on beekeeping, while necessarily elementary, is orthodox, and, like the other portions of the book, forms a basis upon which to build later experience and further reading.

George Washington, Farmer.

When a man achieves great distinction in one line of activity his brilliancy in others is often forgotten by posterity. John Hay, for example, had he not been Secretary of State, would have been remembered as a poet of merit. The career of George Washington as general of the continental armies and first president of the United States has so turned the attention of historians to these more striking accomplishments that his work as a farmer has been neglected.

Now comes an author, Paul Leland Haworth, who by patient research and personal visits to the scene of Washington's labors has uncovered a great deal of interesting information about the home and agricultural life of this, one of the greatest of American farmers. He shows that George Washington was a progressive agriculturist as well as the wealthiest American citizen of the eighteenth century.

Washington cultivated alfalfa on his farm in 1760. He was the first American to raise mules. He was one of the first to conserve the soil. On his estate at Mt. Vernon he performed hundreds of agricultural experiments. He made farming machinery with his own hands. He was a pioneer in improving breeds of stock. This volume is well illustrated with photographs, facsimiles of documents and a map of Mt. Vernon drawn by Washington himself. The book is handsomely bound, and makes a worthy addition to any agricultural library as well as any historical. In fact, it is one of the few books which are necessary for the man who would know the history of agriculture.

"George Washington, Farmer," Paul Leland Haworth, 336 pages. The Bobbs-Merril Co., Indianapolis, $1.50 net.

Sweet Corn.

Among the valuable things which early settlers in this country received from the Indian inhabitants was sweet corn, a plant of strictly American origin. It has been profitably grown in gardens and truck-farms ever since. What would our meals be without it?

Now for the first time a practical and complete monograph on sweet-corn culture has been prepared. The author, Albert G. Wilkinson, of the Department of Vegetable Gardening, in the New York State College of Agriculture, treats the subject in detail as only a practical man engaged in sweet-corn growing can handle it.

Varieties, methods of culture, commercial growing, and processes of drying and canning, are completely covered. The book will appeal to the small farmer, market gardener, and suburban grower.

"Sweet Corn," Albert G. Wilkinson, 203 pages. The Orange Judd Co., New York, 75 cts. net.

Mushroom-growing.

What boy has never known the keen joy of gathering mushrooms on a warm day in spring? As we remember it, even fishing was hardly equal to the sport of hunting for the lowly fungi. On the table nothing was ever finer than the mushrooms we had ourselves gathered, unless possibly it was the honey from our own hives.

B. M. Duggar, of the Missouri Botanical Garden, is the author of a volume, "Mushroom Growing," just published. Here are the requiremenets for growing mushrooms at home, making it entirely unnecessary, if one has the facilities, to depend on chance discoveries in pastures or wood-lots. He shows how mushroom-growing can be placed upon a paying commercial basis, especially if one lives near a good-sized market.

The author has spent many years in extended observations upon the best practices of the mushroom-growers of the present time. For the past fifteen years he has had wide experience with experimental and commercial production. The information contained in the book is therefore reliable, definite, up-to-date, and comprehensive.

"Mushroom Growing," B. M. Duggar, 250 pages. The Orange Judd Co., New York, $1.50.